

Libman, Alexander; Schultz, André; Graeber, Thomas

**Working Paper**

## Tax return as a political statement

Frankfurt School - Working Paper Series, No. 169

**Provided in Cooperation with:**

Frankfurt School of Finance and Management

*Suggested Citation:* Libman, Alexander; Schultz, André; Graeber, Thomas (2011) : Tax return as a political statement, Frankfurt School - Working Paper Series, No. 169, Frankfurt School of Finance & Management, Frankfurt a. M.

This Version is available at:

<https://hdl.handle.net/10419/48657>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

**Frankfurt School – Working Paper Series**

**No. 169**

**Tax Return as a Political Statement**

by Alexander Libman, André Schultz

and

Thomas Graeber

June 2011



Frankfurt School of  
Finance & Management  
Bankakademie | HfB

Sonnemannstr. 9–11 60314 Frankfurt am Main, Germany  
Phone: +49(0)69 1540080 Fax: +49(0)69 154008 728  
Internet: [www.frankfurt-school.de](http://www.frankfurt-school.de)

## Abstract

The accuracy of a tax return is usually interpreted as an outcome of the tax evasion decision by an individual. However, in non-democratic regimes with predatory blackmail tax systems it is possible that large sums voluntarily reported by influential politicians or businessmen may be used as political statements. By openly acknowledging one's personal income an individual can signal the strength of one's position, or, on the contrary, the submissiveness to the political leadership. In this paper we explore the idea of the tax return as a political statement and test it using a unique dataset of the tax returns filed by the Russian regional governors and the members of their families for the year 2009. Our results conjecture that Russian governors may deliberately file their tax return as a political statement to signal their strength vis-à-vis the central government.

This article was published in Frankfurt am Main.

Key words: tax compliance, communication in non-democracies, Russian regions.

JEL classification: D73; D78; H26; P26

ISSN: 14369753

### Contact:

Prof. Dr. Alexander Libman  
East-West Centre for Business Studies  
and Cultural Science  
Frankfurt School of Finance and Management  
Sonnemannstraße 9-11  
60314 Frankfurt am Main, Germany

Email: a.libman@fs.de

André Schultz  
East-West Centre for Business Studies  
and Cultural Science  
Frankfurt School of Finance and Management  
Sonnemannstraße 9-11  
60314 Frankfurt am Main, Germany

Email: a.schultz@fs.de

Thomas Graeber  
Frankfurt School of Finance and Management  
Sonnemannstraße 9-11  
60314 Frankfurt am Main, Germany

The authors appreciated the very helpful comments of Carsten Herrmann-Pillath, Aleksei Zakharov, Mikhail Golovnin, Yegor Lazarev, Rustem Nureev, and Olga Demidova, as well as of participants of the HSE Annual Conference in Moscow in April 2011, European Public Choice Society Conference in Rennes in May 2011, and Frankfurt School workshop on political economics in March 2011. All mistakes remain our own.

## Content

1. Introduction.....	4
2. Political message and tax compliance: the Russian case.....	7
3. Model and data.....	11
4. Results.....	15
4.1 Is tax return a political statement?.....	15
4.2 Loyalty or handicap? .....	21
4.3 Endogeneity and spatial correlation .....	24
5. Discussion.....	26
6. Conclusion .....	28
References.....	29
Appendix A: Summary statistics and description of variables .....	33
Appendix B: “Profession” and “Business Connection” .....	37
Appendix C: The role of institutional characteristics of the regions .....	39
Appendix D: Impact of former governors .....	40
Appendix E: Appointments and elections .....	41

## 1. Introduction

The information transmission between different levels of a political system in a non-democracy is usually extremely difficult. First, the absence of open media forces politicians to use other channels for communication.<sup>1</sup> Second, an even more difficult task for lower-tier politicians is to ensure the credibility of their claims vis-à-vis higher-tier politicians. In a democratic society one of the main mechanisms ensuring credibility are the audience costs (Fearon 1994, 1997), referring to the fact that voters react to statements made by political actors (see also Alesina 1988). This reaction ensures to a certain extent credibility vis-à-vis the electorate, but also vis-à-vis higher tier politicians. Voters observe (through free press) the communication between political actors of different levels and have incentives to punish those of them who deviate from their original promises, thereby affecting policy choice and ultimately the well-being of voters. In non-democratic societies voters are powerless and this mechanism does not work.

Thus, in order to send a credible signal to higher-level politicians (e.g. president), lower-level members of the elite (e.g. regional governors, ministers or owners of large companies) have to use other tools. Such signals should be (1) costly enough for lower-tier politicians to ensure the credibility of their statements, and (2) available even in an environment of censorship of direct public statements. This paper examines one of the existing signals in non-democracies, which however, has the additional property of affecting the level of tax evasion and avoidance of politicians and tax revenue of the government.<sup>2</sup> We intend to show that in non-democracies with high level of tax avoidance and evasion politicians can credibly signal their relative strength in relation to the higher-level government by reporting their personal income honestly and thus being more tax compliant.

The claim that tax evasion and political preferences are interrelated is not new. A growing literature argues that the tax evasion or avoidance decision is not just an outcome of a rational choice based on costs and benefits of underreporting one's revenue. Instead, taxpayers see themselves in an exchange with the public administration. They pay taxes and receive some services in return. People may wonder if the gains from this exchange are worth more or less than what they pay in taxes, and thereby develop some attitude toward the equitableness of the tax system (Cowell 1992; Falkinger 1995). If taxpayers perceive the exchange as highly unbalanced and unfair, they may choose to non-comply with their duties. Obviously, this perception is related to the assessment of the "correctness" of the governmental policy and politics, i.e. to the political stance of the taxpayer. Even if the taxpayer does not receive full equivalent of her contribution in form of public goods, but perceives the political process as fair and legitimate, it improves tax compliance (Feld and Frey 2007). In this case, general political preferences, on the one hand (e.g. pro-democratic attitudes or patriotism), and the dissatisfaction with the policy of a particular government, on the other, may turn out to crucially influence the tax morale. From this point of view, in any country (and particularly in a

---

<sup>1</sup> In the extreme case, the information passes only through the bureaucratic hierarchy, which is notorious for having strong incentives to misrepresent signals (e.g. report only "good news" to the superiors, see Prendergast 1993).

<sup>2</sup> All arguments of this paper work for tax avoidance as well. In fact, in the empirical case we study, we do not distinguish between illegal tax evasion and semi-legal and legal manipulation of taxes (tax avoidance).

non-democracy with low governmental accountability), by filing a tax return, an individual signals to the government her approval of public policy and her loyalty to the existing regime.

However, our paper adds an additional channel of how tax evasion can be influenced by political considerations. The subsequent logic is based on an important (and highly realistic) assumption. While in a developed society hiding one's income from a tax authority puts a taxpayer at risk, in a developing dictatorship the risk may be higher if one openly acknowledges the control of assets and income. It not only "attracts the eyes" of public officials (who are mostly predatory – so, the government just extracts revenue from the population whenever possible), but also gives them the option for manipulating legal procedures against taxpayers. Therefore, the more information one provides, the more risky the situation is. In this system operating in full accordance to the law is simply impossible (because it is contradictory in itself, so the "catch-22" problem is unavoidable).<sup>3</sup> By being more open the taxpayer just makes the investigation into violations easier: compare, for instance, a "pure" shadow business operating without any receipts or documentation and a "semi-legal" business hiding the violations in the actual documentation. Furthermore, in an environment of wide-spread tax violation the government is unable to find all instances of tax evasion. Therefore, by reporting income truthfully one just simplifies tax officials' job. This aspect becomes particularly relevant when considering that the intensity and thoroughness of investigations in such systems is politically motivated. Or stated otherwise, the application of tax law is "selective" by design. As a matter of fact, these tax systems are claimed to be deliberately structured by the government in order to blackmail potential opposition (Radaev 1998; Darden 2008).

Under these conditions, generally speaking, tax evasion is less costly than compliance with the tax law. Therefore being honest can serve as a (costly) signal of one of two possible political stances. First, a wealthy politician or businessman (with tax returns receiving special attention of the political leadership) seems to be likely to honestly report her income only in case her political position is strong enough to guarantee that the tax authority will not use the revealed information against her. Then truthful reporting serves as a credible signal of strength. The story is very close to the Handicap Principle (Zahavi 1975) in biology, which claims that an animal in the mating process signals its "quality" by a "handicap". This animal deliberately exposes itself to a predator and by surviving the increased risk it signals its superior quality (see also Herrmann-Pillath 2007).<sup>4</sup> We will refer to this interpretation of honest reporting as the **handicap hypothesis**. Second, a wealthy politician or businessman could deliberately increase the risks of expropriation from the predatory government to show the regime. In this case low tax evasion is similar to "giving hostages" to the government.

---

<sup>3</sup> It does not necessarily loyalty to apply to the tax law as such. For income taxation in Russia, our main empirical example, the law is quite simple. Complexities can be created from ambiguous and voluntaristic application of the law (granting huge rights to tax authority), lax implementation of regulation, interdependencies between various areas of the regulation (such that providing accurate information on taxation makes investigation of other violations of economic regulation more probable) etc. For example, accurate reporting of private income from stocks of firms may lead to investigation of the corporate profits of these firms, and the respective regulation in Russia is highly sophisticated and unstable (see Chakovskiy and Dyatlikovich 2011 for examples). Overall, the more information is available on a politician, the more vulnerable she is.

<sup>4</sup> Handicap theory is, of course, a "twin brother" of the standard economic costly signaling approach.

The politician makes it easier for the regime to punish herself in case of the possible conflicts and contradictions. We will refer to this interpretation as **loyalty hypothesis**.<sup>5</sup>

This paper attempts to empirically inquire into the existence of “political signaling” through tax returns in non-democratic countries. For this purpose we will use the Russian case. Specifically, we will look at a unique dataset of tax returns of the Russian governors. In the late 2000s the Russian leadership (first under president Vladimir Putin, and later under Putin as prime minister and Dmitriy Medvedev as president) was able to create a centralized political system (framed as “the vertical of power” in the Russian political slang), effectively establishing control over the media and restricting any public political discourse – especially among those occupying any official positions in the country (like members of the parliament, ministers or governors). From 2008 on, the high-ranked officials in Russia are required to make their tax returns publicly available;<sup>6</sup> yet the monitoring and the enforcement of reported information accuracy is claimed to be very weak (as it will be discussed below). From all the top bureaucrats and politicians of the Russian Federation we concentrate our attention on the regional governors, because this group can also signal their loyalty to the central administration by ensuring the “correct” outcomes of the regional elections (which are heavily manipulated in Russia).

We find that in Russia, regional governors who performed poorly in “organizing” a large number of votes in favor of the president or his party at the parliamentary and presidential elections are among the “best performers” in terms of the revenue reported in their declarations. This result is evident even if we control for indicators of the actual income of the governors. While this result is consistent with both the loyalty and handicap hypotheses, we are as well able to disentangle these two possible ways of political signaling by looking at the total income reported by the governor and his family (husband and wife) as opposed to the mere income of the governor. We conclude that the handicap hypothesis seems to be more realistic and that the Russian case suggests that a reduction of tax evasion to signal one’s strength is possible.

The paper is organized as follows. The next section provides further information on the Russian case and clearly sets up the assumptions for our analysis. The third section presents the data and the model. The fourth section reports the main results. The fifth section discusses our findings from the point of view of the existing literature. Finally, the last section concludes.

---

<sup>5</sup> This inherent ambiguity in the interpretation of the political statement possibly implied in a tax return poses a crucial problem to the sender of the message. To be worth its risks, an individual must expect that the recipient of the message, i.e. the central government, gets the signal right. The ability of a central government to grasp the meaning of tax returns depends upon its pre-existing knowledge regarding the loyalty and the strength of the sender, therefore in both cases reduced tax evasion is likely to be correlated with other signals, probably making them more credible (as it is associated with higher risk for the taxpayer).

<sup>6</sup> To be more precise, the information is reported under anti-corruption law, so it is not the actual tax returns filed by the Russian governors to the tax authorities, yet the deviations between these two documents in terms of the total income reported seem to be unlikely, since, in some sense, they both are directed towards the same recipient, which is the federal government (including the federal tax authority).

## 2. Political message and tax compliance: the Russian case

**Regional governors and federal elections:** The Russian political system evolved over the 2000s from a highly decentralized organization of the late Yeltsin era into a hierarchical “vertical of power” structure. In 2004 the direct elections of the governors were abolished. The new system de-jure set the elections of the regional governors by the regional parliaments from a list of candidates suggested by the Russian president. However, de-facto, it gave the president an almost unrestricted authority to appoint governors. In the first years after the elections had been abolished the federal government acted with caution, often keeping the strong regional political machines intact. By the late 2000s the federal control over the regional politics increased significantly. Although the ability of the federal government to monitor the regional policies was still not unambiguous (as late as 2010 in some regions, like City of Moscow, the key regional acts contradicted the federal legislation), the center has been much more successful in terms of establishing control over the public political discourse in Russia. By 2009 almost all governors had either joined the ruling party *Edinaya Rossiya* (United Russia) explicitly supporting president Putin (and later Putin-Medvedev diarchy), or established a close relationship with the party leadership. While in the 1990s and the early 2000s governors actively participated in the public discussion regarding the policy alternatives, the number of public critical statements of governors concerning the policy of the center has become insignificant in the late 2000s. The political system is now much less transparent and allows only for top-down communication (Petrov 2007).

However, even a system of appointments does not necessarily guarantee the firm loyalty of the governors (see Orttung 2010 for details). First, in many cases the president is forced to take the position of the regional elite into account. There is no clear and unique procedure of dealing with this issue. In some regions the appointments follow an informal pact between the regional elite and the center (like Tatarstan in 2010), in others they result from explicit pressure and conflict between the center and the former governor, leaving the new appointee with the difficult task to re-integrate the old political elite of the region into the governance system (like Moscow or Bashkortostan in 2010). Moreover, the president of Russia has to consider the ethnic balance in the region (like in Dagestan). Second, while the system of re-appointments certainly limits the links between the regional elite and the governors, it is unable to destroy them. After some time, governors are likely to become entrenched in the regional political system (as it often happens with centrally appointed officials in large and heterogeneous countries). The tenure of Russian governors is usually quite long (at least 8 years), allowing sufficient time for entrenchment. Third, the federal administration is not a monolith. Multiple conflicting groups compete for influence, resulting in diverse, partitioned loyalty from the appointed governors. Fourth, the governors’ personal tracks are very different, as are their backgrounds, which inevitably result in divergent political positions. Finally, there is a gap between public rhetoric and real actions of the governors, and the center is very often reacting to the former (Libman 2010a). To conclude, the system does ensure certain level of control over regions, but it is important not to over-estimate it. It is successful in dealing with



outright public protests, yet does not ensure absolute and unquestionable loyalty of every governor.<sup>7</sup>

One of the key tasks of appointed governors is to ensure the results of the federal elections in their regions desired by the federal government. Although in many regions the governors had an almost exclusive control over election outcomes in the 1990s, the scope of interventions and manipulations in the electoral process and the votes count increased dramatically in the second half of the 2000s. The literature on Russian elections illustrates the variety of instruments and techniques for election fraud (Myagkov and Ordeshook 2008; Nureev 2010; Mebane and Kalinin 2010). To give only two examples, the votes for Edinaya Rossiya are found to be correlated with the electoral participation, implying that at least part of participation measures have been falsified. Moreover, the distribution of votes exhibits spikes at round numbers which should be observed for any naturally occurring distribution of electoral participation. Thus, one can claim that the Russian electoral outcomes are a highly inaccurate, unlikely a measure of the political preferences of the population, and should rather be treated as the choice variable of the governors and the regional political machines responsible for the elections. However, while on average the results of the elections have always been favorable to the Putin / Medvedev administration and Edinaya Rossiya, there is still a significant variation in the outcomes: the State Duma (parliament) elections' of 2007 share of Edinaya Rossiya varied from 48 to 99%, the share of Medvedev at the presidential elections 2008 between 59 and 92%.<sup>8</sup> As Simpser (2008) shows, politicians manipulating elections have reasons to be interested not merely in electoral success, but in overwhelming margins of victory; therefore excessive cheating by the regional governors in favor of the federal candidates should be perceived very positively by the federal administration.

However, manipulating elections is associated with certain costs for the governor and the regional elites: one has to actively use the political machine against possible opposition, to mobilize regional bureaucrats to harass opposition candidates, to falsify the election outcomes (and to avoid free-riding from public officials), to control possible independent observers at the elections and to pressure the regional media. Therefore it is plausible to claim that governors more interested in federal support attempt to ensure the best possible election outcome in favor of the federal candidate and / or party.<sup>9</sup> Strong governors, on the other hand, are less inclined to report exorbitant results at federal elections at any cost. To be more precise, one has to control for further possible variables potentially measuring the preferences of the regional population and the strength of the governor – as it will be discussed in the next section dealing with the empirical strategy of this paper.

Tax compliance in Russia: Russian economy is notorious for the high degree of tax evasion. Certainly, in the 2000s the improvements in the quality of public bureaucracy, better control over courts, as well as increasing transparency of the business sector were able to reduce it as

---

<sup>7</sup> It is not unique for Russia, but rather typical for any large country with centrally appointed governors and limited monitoring capacity of the central administration. For the theoretical treatment of this problem see Myerson (2008).

<sup>8</sup> For the whole set of Russian regions; some of them, as it will be shown in what follows, will be excluded from our analysis.

<sup>9</sup> it is not surprising that the Edinaya Rossiya and Putin / Medvedev regularly receive the highest support in the ethnic republics of the Northern Caucasus, where the local administrations are extremely weak and lack public support in their regions and the local budgets exhibit critical dependence upon federal transfers

opposed to the exorbitant levels of the 1990s. This was partly caused by the internationalization (Yakovlev 2005) and advancements in tax reform (Jones Luong and Weinthal 2004), particularly the flat tax on personal income (see Ivanova et al. 2005 and Gorodnichenko et al. 2009 for the discussion of this problem). However, tax evasion is still widespread in Russia (Mironov 2004). In a study of fiscal sociology of the Russian small and medium enterprises, Paneyakh (2008) indicates that this tax evasion often appears as a result of an informal contract with the tax authority. To provide an extreme example: a taxpaying entity files its financial reports (prepared for the tax authority), which are significantly different from the real operations of the firm, and furthermore include a number of small formal mistakes. The tax authority investigates and uncovers the formal mistakes, thereby taking credit for “unravelling” a tax law violation and imposing additional fines, yet does not dig deeper and makes the further tax evasion by the company go unpunished. Tax reporting prepared by an entrepreneur without any mistakes may even be considered by the tax authority as a “challenge” to the system of existing informal payments and thus be subject to more detailed investigation (Chapkovskiy and Dyatlikovich 2011). In fact, according to the Russian tax authority, more than 90% of all tax audits result in “unravelling” some violations of the tax law.

On the other hand, Russian tax authorities are notorious for asserting unjustified and illegal claims to the taxpayers, as it has been recognized even by the high-ranked officials of the Russian Ministry of Finance (see e.g. the interview of Ilya Trunin, head of the Department of Tax Policy, to *polit.ru*, 2008, January 17). While the ultimate decision may still be in favour of the taxpayer, dealing with tax authority is in this case a costly and difficult procedure. The probability of being subject to such unjustified claims increases with the visibility of taxpayer, i.e. the amount declared in the tax returns. The consequences can turn out even more disastrous for the taxpayer, if the actions of the tax authority are politically motivated. Overall, the tax audit in Russia seems to be selective, and is quite often used to fight the political opponents on the federal, but also regional level (McMann 2006). The idea is, as mentioned before, that the political leadership is actually interested in the proliferation of tax violations, which can be, when needed, used as a tool of blackmail against its opponents. Therefore Russia has many features of the blackmail state described in the introduction.

Russia indeed provides anecdotal evidence of behaviour similar to the handicap and loyalty hypotheses described above (which apply not merely to taxation, but also to other policies). In the early 2000s one of the strongest and most ambitious ‘oligarchs’, Mikhail Khodorkovskiy, deliberately transformed his company Yukos into one of the most transparent Russian businesses, at the same time attempting to take a strong stance vis-à-vis the federal government by, for example, active lobbying and direct financial support to a number of parties and members of the parliament. In this case the signaled strength was insufficient to overcome the predator. In mid-2000s *Yukos* was, as it is well known, destroyed through a tax evasion lawsuit. The company’s high level of transparency just made it easier for the tax collectors to compile a convincing case against Khodorkovskiy. The *Yukos* case is not unique.

There is also a number of high-profile cases when showing one’s revenue may serve as the “oath of loyalty”. In 2004 the wealthy oligarch Viktor Vekselberg acquired a collection of Fabergé eggs for a sum estimated between 90 and 120 mln USD and transported it to Russia – thus not only making it vulnerable to expropriation, but also legally restricting his ability to re-sell the eggs outside of the country (Russian law prohibits any export of these items). Almost immediately after the start of the *Yukos* investigation, Vekselberg’s decision was clearly

construed as a symbol of loyalty to the Russian leadership. In a similar example, in 2007, the owner of one of the largest Russian aluminum companies Oleg Deripaska stated that “if the government says we have to give it [our business] up, we will do it. I do not distinguish myself from the state. I have no interests different from that of the state” (see RIA Novosti, 2007, June 13). Openly acknowledging actual property may serve a similar purpose (even to a greater extent: cheap talk is replaced by a commitment, which is – given the state of the Russian tax administration – credible).

**The role of the governors:** The problems of the blackmail state are in many cases even more severe for the regional governors than for private businessmen. On the one hand, high-ranked bureaucrats face restrictions in their business activity. In addition, considering the Russian business practices, if bureaucrats do engage in business endeavours, it is in many cases associated with the misuse of their power position and indirect corruption (like providing contracts to the selected firms indirectly owned by the members of the governor’s family). On the other hand, many Russian governors in the 1990s had a significant stake in their region’s key assets, establishing their own dominant business groups, like in the ethnic republics of Bashkortostan and Tatarstan, where the governors Murtaza Rakhimov and Mintimer Shaimeiv controlled the key oil and gas companies, or in the City of Moscow, where the wife of the mayor Yuri Luzhkov successfully turned her construction company *Inteko* into one of the most prosperous businesses in Russia and became one of the richest women in Europe (Peregudov et al. 2003). Although in some regions they have been weakened by the “invasion” of strong multi-regional corporations in the early 2000s (Ortung 2004), in others they survived at least until the end of the tenure of the governors. The investigations associated with these informal business groups (or the threat of these investigations) have been actively used in the late 2000s to remove the strongest governors from their positions (the cases of Bashkortostan or Moscow City show that quite well). Furthermore, since the late 1990s several Russian regions experienced the successful participation of businessmen in elections (Gehlbach et al. 2010). While the law requires businessmen in case of their success to cease the direct management of their firms, they of course still receive revenue from owning shares in companies (and certainly keep informal connections).

Based on the previous argumentations, the problem with tax compliance faced by governors is clear. On the one hand, openly acknowledging one’s revenue simply makes the investigation of violations easier for the tax authorities – and also for the police, looking, for example, at irregularities in the procurement policies. In this case, reporting might rather indicate that the governor is simply “not afraid” of these threats – for example, given his very strong position in the region, which makes removing him from office very costly for the federal government (indeed, some entrenched governors stayed in power as long as until 2010, which marked the removal of the last independent regional leaders of the Yeltsin era from their positions). On the other hand, openly acknowledging one’s revenue may also indicate the loyalty to the government. The tax reforms of the 2000s re-distributed the tax revenue in the Russian Federation in favour of the federal administration. Modern Russia is a highly centralized fiscal federation in which the federal government has almost complete authority of tax rates and bases, controls the tax collection, and also receives a permanently increasing share of the tax revenue. Thus, both loyalty and handicap hypotheses make sense for the Russian regional governors. This paper attempts to investigate them in an empirical setting.

The absence of traditional channels to participate in the political discourse in autocracies like Russia makes the existence of alternative and indirect institutions for signalling political

stance ever more likely. While tax returns represent one possible means to achieve this by delivering subtle political messages to the central government, they are undoubtedly a quite costly and unorthodox method to do so. After all, one cannot presume with absolute certainty that the signal is deciphered and reacted upon. For the sender of a signal of loyalty, a misinterpretation by the central government would induce serious wealth losses through the tax authority's standard response of expropriating the complaining party. For someone who uses compliance to demonstrate one's strength, a correct understanding of the message by the government would result in serious consequences, which may indeed deprive that person of the possibility to strive against the regime in the future. Therefore, one should also consider other probable message carriers at disposal of the regional governors: the votes for the candidate of the center at federal elections. Thus a low share of votes for Medvedev or Edinaya Rossiya at the federal elections indicates less loyalty of the governor.<sup>10</sup>

This paper will validate the use of tax returns as political signals by correlating the reported income with the outcomes of the elections (this signal is, probably, also the most obvious to be used by the governors, given the attention to the elections at the central level). Further signals can include the reaction of the governors on public actions of the opposition in their territories (suppressive or indifferent – supportive is, as mentioned, impossible); penetration of Edinaya Rossiya membership in the regional parliaments and administrations; speed of implementation of federal projects etc. We do not claim that the signals sent are received correctly; but we assume that if the actions of governors are correlated, and some of them can be interpreted as signals, others are likely to be signals as well.

### 3. Model and data

Our paper is not the first to look at the income data of politicians and bureaucrats. A small, but growing literature examines the income of Western politicians and bureaucrats which is often published in as part of anti-corruption measures or electoral campaigns (e.g. Rosenson 2007, Rinke et al. 2009, Kean and Merlo 2010, among others). However, the data is always derived from developed countries with established democracy and relatively high tax compliance and therefore assumes that the reported information represents the true income of the politician.<sup>11</sup> To our knowledge, no data of this sort for any non-democratic countries have been available so far.

As mentioned above, since 2008 the Russian bureaucrats are required to publish a report on their own income and the income of their immediate family including their wives (the reports include a list of key assets such as real estate and cars).<sup>12</sup> The information is published in the year following the year the revenue was generated: for

<sup>10</sup> Since tax returns are publicly available, one could question whether governors intend to address other “stakeholders” with their returns as well – like the regional population or regional elites. However, first, Russia is a non-democracy, and the governors are primarily appointed by the central government. Second, as we will show, in spite of de-jure public reporting of the returns, population has great problems in accessing them and in many cases is not really interested in their information.

<sup>11</sup> Furthermore, in the Western world it is not so easy to make an unambiguous link from total tax revenue to the fiscal burden. The Russian flat tax system combined with extremely small number of exceptions and special treatments in the tax code makes the mapping from declarations of income to the tax returns unambiguous; if anything is manipulated, it is the total income of the politician.

<sup>12</sup> With the exception of St. Petersburg and Khanty Mansy Autonomous Region all Russian governors are male, however the latter is not in our sample.

example, in spring 2010 for the year 2009.<sup>13</sup> For the first time it was published in 2009 for 2008. Although the data is publicly available, there has been very little done in terms of enforcing and monitoring the information. Until recently, there were no fines or punishments for delays in publishing the data<sup>14</sup> and no requirements as to *how* this information should be published (in many cases it is hidden among many links on the official Internet sites and very difficult to find). Some changes have been introduced in this respect in summer 2010, i.e. after the period of study covered by this paper. It is therefore not surprising that the data in the tax returns are often been claimed to be highly inaccurate.

Generally speaking, since corruption and tax evasion in Russia are extremely widespread in the public administration, expecting truthful reporting is unlikely. Furthermore, many acquisitions of luxury goods and assets (e.g. houses, cars, yachts, expensive watches etc.) are dubiously high as compared to the income reported. There has been abundant anecdotal evidence of spending of Russian governors and high-level politicians substantially exceeding their declared income (see Petrova and Kvasha 2011; Kommersant 2011). In January 2011 president Medvedev himself openly pointed out the existence of significant discrepancies between the reported and the true income and property of the bureaucrats and the absence of real enforcement tools to ensure truthful reporting (for instance, personal responsibility of bureaucrats for providing incorrect information). Therefore he ordered all tax returns to be checked by the federal tax authority and the Prosecutor's Office of the Russian Federation (Interfax, 2011, January 13). The subsequent investigation of the federal tax service did not discover direct tax evasion. However, first, the accuracy of these checks (and the integrity of the officials as such) are at question given multiple informal interconnections in the Russian political system and administrative machine,<sup>15</sup> and second, the checks deal only with explicit tax evasion and not with the more elaborate 'gray zone' between tax evasion and tax avoidance (e.g. use of the offshore zones, see Novosti Valyutnogo Rynka, 2011, February 25). But in March 2011 the Prosecutor's Office (with broader authorities) reported about 41,000 violations in the returns of officials of various levels (with only 6,000 violations resulting into any form of punishment) and throughout many regions (see Vedomosti 2011, March 23).

For our purpose it is reasonable to look at the declarations exactly to study the tax compliance as a *conscious choice of an individual*. In order to find out whether the tax returns are used to convey political statements, it is necessary to link the sum declared in the tax returns to other information on the political position of the governors. Therefore, we look at the share of votes obtained by president Medvedev in the region at the presidential elections, which took place in 2008. Specifically, from both loyalty and handicap hypotheses we expect the governors of the regions with lower share of votes for Medvedev to report higher income in 2009. For the handicap hypothesis, the idea is that both lower share of votes and higher income reported serve as a political message of strength of the regional leader to be delivered to the federal government.

---

<sup>13</sup> Russian fiscal year is from January 1 to December 31.

<sup>14</sup> And even decisions to reject publication – although they have been done only by very few public officials, though we have almost no cases like this in our sample.

<sup>15</sup> To provide a comparison, in Ukraine, a country close to Russia in terms of inefficiency, corruption and multiplicity of informal linkages between bureaucrats and business, but with a more competitive political system providing greater incentives for monitoring, a similar check in 2008 discovered that 80% of bureaucrats provided incorrect information on their income (see Korrespondent.net, 2009, July 9).

For the loyalty hypothesis, one could expect the governors to attempt to compensate for their “poor performance” during the elections by being more honest in reporting. Reverse causality is unlikely by design of the study: the elections took place in 2008, and the decision to report taxes in 2010 based on income for 2009 (we will discuss this claim in what follows in greater detail).

Nevertheless, one cannot exclude the omitted variable bias. Both the outcomes of the elections and the reporting in 2010 can be triggered by a hidden variable we do not observe: the true income of the taxpayer. Collecting any accurate data on the true income is highly problematic (a problem present in most empirical studies in the tax evasion and avoidance literature), yet we use two proxies to account for this problem. First, the Federal Statistical Agency in Russia reports the information on the average salaries of regional bureaucrats for each region. One can reasonably expect that if the average salaries of bureaucrats are higher, the salary of the highest-ranked bureaucrat (the governor) is higher as well. Second, we have used various media sources to look for reports of the business connections of the governor, and added a dummy for governors with business associations (for details see Appendix B). These two proxies account for two possible sources of income for the governor: his official salary and his business connections. Certainly, both proxies are not entirely accurate representations of the governor’s true income (and therefore our solution to the endogeneity problem is imperfect), yet given the nature of the problem we investigate they might be the best possible alternatives.

Hence, our econometric strategy is the following. We estimate the determinants of the size of tax return reported by the governor, controlling for the governor-specific characteristics (as they will be discussed in what follows), proxies for the true revenue and proxy for his political preferences (i.e. outcomes of the federal elections in the region in 2008). If one finds a negative and significant association between preferences and tax returns (*ceteris paribus*), one can expect the tax return as a political statement hypothesis to be true. Yet we still are unable to differentiate between the handicap and the loyalty hypotheses. For this purpose we use another feature of the Russian data. As mentioned, governors are also required to report information on the income of their wives. A popular tool of avoiding restrictions for public officials in terms of controlling businesses and making assets, businesses and income less “visible” in Russia (as well as elsewhere in the world) has been the de-jure transfer of property to friends and family members. For example, the wife of the governor of Primorski krai, originally an actress, received control of all businesses of her husband once the latter was elected governor. So, we calculate the income of the complete household of the governor and regress it on the same characteristics, plus a dummy for the business connections of the wife.<sup>16</sup>

We claim that the loyalty and the handicap hypotheses have very different implications for the income of the “total” household (and for the income of the wife of the governor). If the loyalty hypothesis were true, one should expect the *total revenue* to be negatively correlated with the share of votes for Medvedev, or possibly both *the income of the governor* and *the income of his wife* to exhibit this correlation. Both the wife and the governor himself generate revenue

---

<sup>16</sup> As a caveat, one should notice that for some households of the governors (e.g. Valeriy Serdyukov in Leningradskaya region or Murtaza Rakhimov in Bashkortostan) it could be more important to control for the income of their (adult) children than of their wives. However, the information on children and other relatives is less systematic and more difficult to employ in this study.

for the federal budget, and make themselves vulnerable by reporting truthfully if the federal government decides to expropriate the business or to take measures against it. But if the handicap hypothesis is true, the revenue of the wife does not matter. Therefore in order to signal one's strength, a governor is likely to consciously refute the use of "re-routing" income to other family members, openly claiming control over his assets in an unambiguous way. Therefore the income of the wife should be purely stochastic<sup>17</sup> and not correlated with the votes for Medvedev.<sup>18</sup> Thus, we conjecture that for the loyalty hypothesis the negative correlation should be present for both governor's income and total family income (or possibly merely for the total family income), while for the handicap hypothesis we expect negative correlation to be present for the governor's income only.

In this paper we estimate a series of cross-sectional regression explaining the tax reporting of 2010 by a set of governor-specific and region-specific variables (the description of variables and the summary statistics are in *Appendix A*). Although the data on tax reporting is available for all regions (in three regions – Amur, Magadan and Murmansk – the governor was either not married, or his wife did not report any information on her income), we exclude a number of observations. First, as it is usual in the studies of Russian regional datasets, we exclude Chechnya (for which any information is unreliable) and the so-called "autonomous okrugs", i.e. Russian regions with subordinate status being part of other regions (there are only three of them), once again, because several region-specific characteristics are not available for these territories. This is an issue of data availability, and our decision is standard for the econometric analysis of Russian regional data.

Second, we also exclude all governors, who have been appointed in 2008 and 2009; obviously, under these conditions claiming that the elections and the tax return represent the policy choice of the same governor is impossible.<sup>19</sup> There is also a special case of six governors, who have been in power in 2008-2009, but have been removed from their office in early 2010 (in Krasnoyarsk, Komi, Dagestan, Tatarstan, Volgograd and Evreyskaya Autonomous Oblast). These governors were removed *before* they have published their tax return. For two regions (Dagestan and Tatarstan) the governor resigned from public service and therefore no information on their income in 2010 is available. Thus, we had to exclude these regions from our analysis. For four regions the governors remained in the public service<sup>20</sup> and therefore had to publish their income information. It is not clear, however, whether their decisions followed entirely the same logic as that of the governors. We therefore exclude Komi, Volgograd, Evreyskaya and Krasnoyarsk in the baseline regressions, but estimate a robustness check including these four regions.

<sup>17</sup> Or determined by her person-specific characteristics, e.g. her own businesses – note, that there is no need for the wife to send any political signals, unless she herself is an active politician – we, however have not found similar cases in our sample

<sup>18</sup> Note that in Russia each member of the family is obliged to submit his or her own tax return, and in a flat tax environment there is no room for optimization through shifting taxes between husband and wife, so we just add up the tax returns of governors and their wives.

<sup>19</sup> We exclude all new appointments of 2008, even if they happened before the elections, because there may be a significant share of uncertainty associated with the power transition, which would distort our results

<sup>20</sup> As members of the upper chamber of the Russian parliament – the Council of the Federation – Komi, Volgograd and Evreyskaya, or as vice prime minister and special representative of the president in the Northern Caucasus – Krasnoyarsk

This omission of the regions due to the re-appointment of the governors is not harmless, because it may create a self-selection bias. The decision to appoint new governors made by the federal government could potentially be conditional on the performance of the old governors at the elections. In order to check for the presence of this problem we implement a simple mean comparison of votes for Medvedev between the regions where new governors had been appointed and the regions where governor stayed in power. We also look at the State Duma elections in 2007, which preceded the presidential elections by less than 6 months and in Russia are usually part of the same electoral campaign. In this case we look at the votes for Edinaya Rossiya and exclude all new governors appointed in 2007-2009. *Table 1* reports the results. Actually, we see a somewhat higher share of votes cast in support of the Kremlin candidate and party for regions where governors were replaced and not in the regions where the governors stayed in power, but the effect is marginal and is statistically insignificant at any reasonable level.<sup>21</sup> Thus, the problem we have discussed is unlikely to occur.

**Table 1: Voting for Putin and Edinaya Rossiya (%), difference of means between the regions where governors have and have not been replaced in the year of elections**

Variable	Same governor	New governor	Difference
Presidential elections 2008 (votes for Medvedev)	69.283 No.obs.: 60	70.629 No.obs.: 22	-1.345 t-stat: -0.661 p-val: 0.511
Parliamentary elections 2007 (votes for Edinaya Rossiya)	64.025 No.obs.: 53	65.626 No.obs.: 29	-1.601 t-stat: -0.658 p-val: 0.512

Note: including all regions of Russia with the exception of Chechnya. Excluding autonomous okrugs does not change the results

Since the distribution of the reported income is characterized by significant outliers, we have used a concave transformation and taken the logs of the income reported as the dependent variable. However, we will explicitly discuss the role of outliers in the following regressions.

## 4. Results

### 4.1 Is tax return a political statement?

*Table 2* reports the key findings of the paper for the tax returns filed by the governors themselves. In the specifications (1) and (2) we simply regress the size of tax returns on the voting for Medvedev in 2008, as well as person-specific characteristics of the governors. Specifically, we take the year of appointment or election to the gubernatorial position, the age and

<sup>21</sup> Furthermore, the standard deviation of electoral outcomes in the regions where new governors were appointed is larger than in regions, where the gold governor stayed in power, thus suggesting that both high-performers and low-performers were among the regions where the governor lost his position.



the age squared (to account for possible non-linearity of the age effect, which could reflect differences between cohorts in terms of their revenue and tax evasion behavior), as well as dummies for the professional origin of the governors: military, economists (including business administration, trade and commerce etc.) and bureaucrats (“civil servants”). The remaining governors are mostly engineers (with very few exceptions of journalists etc.). We find that there is a significant and negative association between the revenue reported by the governors and the shares of votes for Medvedev in 2008, as one could expect from the “tax return as political message” logic. Age has a non-linear and significant effect (which, as further specifications show, is not robust).

In the specifications (3)-(6) we account for the problem of the omitted variable bias discussed above by controlling for the proxies of true revenue of the governor: dummy business connections and the average salary of the regional bureaucrat. Indeed we find that in regions where average bureaucrats are rich, the governor on average earns more as well. The reverse causality is highly unlikely: the governor is but one individual, compared with thousands of civil servants even in the smallest regions. Furthermore, as noticed, income from the bureaucratic appointment is just one of the components of the revenue of the governor. In a further specification we substitute this variable by the size of administrative expenditures in the regional budget, which may also reflect special benefits to the governor, which also has a significant and positive effect. The dummy variable business connection has no effect (possibly because business affiliation is often routed through other members of the family).<sup>22</sup> It should be noticed though that our measure of business connections based on media reports is highly incomplete in the Russian case. The share of votes for Medvedev remains negative and significant.

In addition, the specification (5) looks at the problem of outliers. As mentioned, the log transformation produces a more or less smooth distribution of income reported by the governors, but there are still two regions with extraordinary large income reported by the governors: Tver and Kaliningrad. In terms of the absolute value, the governors ruling in these territories reported earnings about 10 times higher than the richest governor outside of these two regions. In all cases the governors have been wealthy businessmen, so there may be a special effect present. However, after excluding these two regions our findings remain robust.

In the following specifications we investigate the role of region-specific variables in the determining of the tax returns. We use all variables, if possible, from the year 2008, i.e. the year of Medvedev elections. In specification (7) we control for the educational background of the regional population. The idea is that, although, as noticed, the dependence of the governors in Medvedev’s Russia on the public opinion in their regions is very small, it still could matter; however, the degree of awareness and of understanding of the issues related to the public tax returns (particularly because of the attempts to somewhat “hide” the information described above) may depend upon the educational level of the population.<sup>23</sup> We specifically look at the

---

<sup>22</sup> We have also estimated a specification including a business connections dummy for the whole family (when either a husband or a wife have business connections). We find no significant impact of this variable on the income of the governor; the negative and significant effect of voting for Medvedev on reported income persists, except for regressions (9) and (10), where it is only marginally insignificant (p-value 0.106 and 0.101).

<sup>23</sup> Overall, according to the survey of VCIOM published in May 2009, only 13% of the respondents attempted to obtain information from the published declarations of income; 30% do not even know where the declarations were published and how one could access them. The share of respondents paying attention to the declarations of public officials (excluding president and prime minister) varied for different groups of bureaucrats between 1

share of the regional population with the university degree, given the fact that Russia still is able to ensure an almost 100% secondary school enrollment. However, our effects for the votes for Medvedev do not change.

In specification (8) we add the proxies of the federal control over the regional security services: police, Prosecutor's office (responsible for the oversight of other security agencies) and the Federal Security Service. All these agencies are officially subordinate to the federal government, yet unofficially in the 1990s the regional administration often were claimed to be able to "capture" them, particularly through development of a network of informal connections with the heads of regional branches of the federal agencies. In the 2000s president Putin attempted to change the situation by replacing the old "entrenched" heads by the new appointees without any links to the region (see Petrov 2005). We use an index reported by Petrov (2009) illustrating the origin of the heads of regional security services in 2007 – which varies from 0 (no connection to the region whatsoever) to 4 (born and spent the whole carrier in the region). Certainly, there have been changes between 2007 and 2009, yet more recent datasets are unavailable. However, inclusion of these variables in the regressions does not generate any significant effects; the effect of votes for Medvedev remains negative and significant.

In the next two specifications (9) and (10) we add a set of further region-specific variables, which can be related to the preferences of the population and / or degree of autonomy of the governor. Specifically, we look at the income per capita in the region, extraction of oil and gas, territory and population (which represent the economic potential of the territory), as well as distance from Moscow<sup>24</sup> and a dummy for ethnic republics – a sub-group of Russian regions which enjoyed special privileges in the 1990s, but was subsequently set equal to other regions in the 2000s (so that in 2008 their special status was mostly negligible; possibly, the effects of this transformation in terms of voting behavior have been documented by Reisinger and Moraski 2009). These two variables may reflect the specifics of the regional political system, preferences of the population, but also degree of federal control (although the latter is less applicable to the late 2000s). We also add the share of federal transfers in the regional budget expenditures, which may also reflect the dependence of the region from the federal center and influence the support of the federal government by the regional population. Our key result, nevertheless, remains intact.

---

and 4% (see *Obschaya Gazeta*, 2009, May 20). Further surveys show that the interest to tax returns remained low in 2010-2011 as well.

<sup>24</sup> To avoid the problem of outliers with very large values of territory, population and distance from Moscow, we also take logs of these variables.

**Table 2: Determinants of declared income, 2009; dep. var.: log personal income from all sources declared by the regional governors**

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS	(8) OLS	(9) OLS	(10) OLS
Share of votes for Medvedev in 2008	<b>-0.036**</b> (0.014)	<b>-0.039**</b> (0.015)	<b>-0.040**</b> (0.015)	<b>-0.035**</b> (0.015)	<b>-0.016*</b> (0.009)	<b>-0.040**</b> (0.015)	<b>-0.037**</b> (0.016)	<b>-0.037**</b> (0.016)	<b>-0.027*</b> (0.016)	<b>-0.029*</b> (0.017)
Age	<b>-0.351*</b> (0.180)	<b>-0.329*</b> (0.179)	<b>-0.276*</b> (0.154)	-0.199 (0.157)	-0.080 (0.104)	-0.218 (0.141)	-0.194 (0.149)	-0.194 (0.167)	-0.219 (0.166)	-0.218 (0.166)
Age squared	<b>0.003**</b> (0.001)	<b>0.003*</b> (0.002)	<b>0.002*</b> (0.001)	0.002 (0.001)	0.001 (0.001)	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)
Year of appointment/ election	0.009 (0.023)	0.016 (0.026)	0.001 (0.024)	-0.006 (0.022)	0.006 (0.020)	-0.002 (0.024)	-0.009 (0.023)	-0.01 (0.024)	-0.008 (0.024)	-0.012 (0.025)
Military		-0.465 (0.317)								
Economist		-0.028 (0.565)								
Bureaucrat		-0.493 (0.343)								
Business connections			0.436 (0.329)	0.426 (0.327)	0.016 (0.172)	0.462 (0.334)	0.452 (0.336)	0.429 (0.345)	0.487 (0.343)	0.495 (0.352)
Average salary of a bureaucrat				<b>0.000*</b> (0.000)	<b>0.000***</b> (0.000)		0.000 (0.000)	0.000 (0.000)	<b>0.000*</b> (0.000)	<b>0.000*</b> (0.000)
Administrative expenditures						<b>0.000**</b> (0.000)				
Education							3.300 (2.383)			
Police central control								-0.080 (0.072)		
FSB central control								0.014 (0.103)		
Prosecutor central control								-0.002 (0.072)		
Log distance from Moscow									-0.291 (0.202)	-0.326 (0.256)
Log territory									-0.019 (0.174)	-0.011 (0.185)
Log population									0.138 (0.156)	0.189 (0.184)
Income per capita									0.000 (0.000)	0.000 (0.000)
Dummy republic									0.117 (0.318)	0.106 (0.320)
Oil and gas									<b>-0.000*</b> (0.000)	<b>-0.000*</b> (0.000)
Fiscal transfers										0.497 (1.164)
Constant	3.298 (46.519)	-10.925 (52.546)	15.740 (48.423)	27.905 (45.135)	-1.780 (40.189)	21.743 (48.210)	33.976 (46.581)	35.714 (48.821)	30.796 (49.475)	37.469 (51.509)
Observations	57	57	57	57	55	57	57	55	57	57
R <sup>2</sup>	0.113	0.180	0.154	0.188	0.217	0.171	0.204	0.196	0.311	0.313
Outliers	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes

Note: robust standard errors in parentheses. \* significant at 10% level, \*\* significant at 5% level, \*\*\* significant at 1% level.

**Table 3: Determinants of declared income, 2009; dep. var.: log personal income from all sources declared by the regional governors**

	(11) OLS	(12) OLS	(13) OLS	(14) OLS	(15) OLS	(16) OLS	(17) OLS	(18) OLS	(19) OLS	(20) OLS
Share of votes for Edinaya Rossiya in 2007	<b>-0.039***</b> (0.012)	<b>-0.041***</b> (0.015)	<b>-0.044***</b> (0.014)	<b>-0.040**</b> (0.016)	<b>-0.018***</b> (0.006)	<b>-0.044***</b> (0.015)	<b>-0.040**</b> (0.016)	<b>-0.040**</b> (0.017)	-0.009 (0.018)	-0.006 (0.017)
Age	<b>-0.633***</b> (0.235)	<b>-0.585**</b> (0.235)	<b>-0.494**</b> (0.195)	<b>-0.450**</b> (0.212)	-0.145 (0.137)	<b>-0.511**</b> (0.216)	<b>-0.449**</b> (0.215)	<b>-0.443*</b> (0.223)	<b>-0.618**</b> (0.282)	<b>-0.647**</b> (0.283)
Age squared	<b>0.005***</b> (0.002)	<b>0.005**</b> (0.002)	<b>0.004**</b> (0.002)	<b>0.004**</b> (0.002)	0.001 (0.001)	<b>0.004**</b> (0.002)	<b>0.004**</b> (0.002)	<b>0.004*</b> (0.002)	<b>0.005**</b> (0.002)	<b>0.005**</b> (0.002)
Year of appointment/ election	0.004 (0.024)	0.013 (0.031)	-0.007 (0.023)	-0.009 (0.023)	-0.007 (0.021)	-0.006 (0.024)	-0.009 (0.024)	-0.009 (0.025)	-0.001 (0.022)	0.012 (0.027)
Military		<b>-0.633*</b> (0.359)								
Economist		-0.017 (0.638)								
Bureaucrat		-0.484 (0.309)								
Business connections			0.464 (0.331)	0.482 (0.327)	-0.038 (0.156)	0.456 (0.336)	0.482 (0.331)	0.512 (0.363)	0.371 (0.392)	0.330 (0.384)
Average salary of a bureaucrat				0.000 (0.000)	0.000 (0.000)		0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Administrative expenditures						0.000 (0.000)				
Education							0.121 (2.030)			
Police central control								0.003 (0.117)		
FSB central control								0.059 (0.156)		
Prosecutor central control								-0.027 (0.090)		
Log distance from Moscow									-0.282 (0.217)	-0.211 (0.256)
Log territory									0.071 (0.251)	0.052 (0.258)
Log population									-0.156 (0.188)	-0.271 (0.187)
Income per capita									0.000 (0.000)	0.000 (0.000)
Dummy republic									-0.471 (0.334)	-0.466 (0.319)
Oil and gas									<b>-0.000*</b> (0.000)	<b>-0.000**</b> (0.000)
Fiscal transfers										-1.218 (1.329)
Constant	20.104 (46.684)	1.626 (59.221)	38.253 (45.015)	41.670 (-44.937)	27.128 (40.265)	36.987 (47.100)	42.013 (46.204)	40.961 (49.509)	28.652 (43.446)	4.605 (52.168)
Observations	50	50	50	50	47	50	50	46	50	50
R <sup>2</sup>	0.257	0.312	0.287	0.291	0.261	0.288	0.291	0.294	0.408	0.417
Outliers	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes

Note: see Table 2.

In addition, we also experiment with adding a set of institutional factors as controls. It is possible that the tax compliance by the governors is influenced by the institutional specifics of

the Russian regions. We use two datasets: the Transparency International corruption index calculated for a set of Russian regions in early 2000s (unfortunately, covering only about a half of our sample), and various findings of the OPORA (one of the largest Russian business associations) survey of SMEs in 2005 covering a variety of institutional features of the regions relevant for SMEs: property rights protection, transaction costs, interventions of regional bureaucrats, quality of the judiciary etc. The results are reported in *Appendix C*. Given the relatively small size of the sample and the fact that these institutional quality measures are often correlated, we had to include them one by one and to drop other region-specific controls. Yet the institutional variables are never significant, and our key finding is sustained in almost all regressions (in spite of having a very small sample size in some instances).

In a further modification we look at is the impact of the changes in the Russian electoral system. As already discussed, in the 1990s governors were elected, while after 2004 they became appointed by the federal center. Different governors therefore had different history in terms of elections and appointments. These differences mostly likely contributed to the preference differentiation (which makes the governors less homogenous and more likely to agree or disagree with central policies), but could also have an impact on the governor's tax reporting behavior. In *Appendix E* we explore this opportunity, by adding the following variables: (a) a dummy for governors, who have never been elected in the past; (b) the number of re-appointments the governor successfully passed<sup>25</sup> and (c) the number of re-elections the governor successfully passed in the past. However, the results of the regressions clearly confirm our findings in terms of the correlation between the presidential elections outcomes and the reporting behavior of the governors.

We also find that the governors, who were elected more often in the past and who have longer tenures<sup>26</sup>, report significantly less (for both themselves and their families – at least in some specifications). One possible interpretation could be that the number of elections won and tenure capture an additional aspect of the true income.<sup>27</sup> Another explanation is the following: in 2008-2009 (especially after Medvedev came to power) the declared objective of the federal government has been to remove governors, who stayed in office for a very long time (particularly before the appointment system was instituted). Thus, these governors could perceive their position to be threatened by the federal administration and therefore attempt to reduce their vulnerability by being less open in the tax reporting<sup>28</sup> - the result does therefore indirectly confirm the basic assumption of this paper that honest reporting increases risk. The result is not consistent with the loyalty hypothesis though: the latter would suggest that governors, who are (due to their objective characteristic) more vulnerable, will report more income to demonstrate loyalty. In terms of handicap hypothesis, the results are ambiguous. The duration of tenure could represent both strength (connections to regional elites, popular support) but also weakness (lower flexibility, declining public support with the tenure of the politician).

---

<sup>25</sup> We include only appointments of the 2000s. Some governors were appointed in the early 1990s before general elections of the governors were introduced; we disregard this experience.

<sup>26</sup> For this particular variable results are absent in other specifications of this paper.

<sup>27</sup> On the one hand, it influences the ability of the governors to survive in their office in the competitive environment, on the other hand, in order to win elections political machines should be created, which could be also used to extract rents

<sup>28</sup> The fact that the effect is present for the income of the governor and of his whole family is consistent with this claim.

To conclude, we indeed do observe a significant and negative association between the revenue reported by the governor and the shares of votes for Medvedev, even controlling for a wide set of further variables (and, specifically, some – although very imprecise – proxies of the “true income” of the governor). Specifically, a decrease of Medvedev’s share by 1 percent point generates an increase in reported income of 3-4% depending upon the specification. As a matter of fact, the share of votes for Medvedev is almost the only variable, which generates a significant and robust effect – unlike other person-specific and region-specific covariates, which, even if significant in some regressions, are usually not robust to the choice of specification.

We also perform a number of further robustness checks and extension. First, we substitute the share of votes for Medvedev in 2008 by the share of votes for Edinaya Rossiya at the State Duma elections in 2007, and drop all regions with the change of governor since 2007. As Table 3 shows, in almost all specifications we still obtain the same significant and negative effect (what is also not surprising, since the both share of Edinaya Rossiya in 2007 and share of Medvedev in 2008 are highly correlated, with the correlation coefficient of 0.849<sup>29</sup>). The results also provide additional support against the presence of self-selection effects in the sample, which could confound our findings.

Second, we re-estimate all regressions including four regions, where the governors remained in public service after their resignation in early 2010: Volgograd, Komi, Evreyskaya Autonomous Oblast and Krasnoyarsk. The findings (*Appendix D*) clearly confirm our main message: the negative correlation between the voting for Medvedev and the reported income is present in all specifications. This result has somewhat broader implications; it suggests that other high-ranked Russian bureaucrats (not just the governors) could behave in the way consistent with our ‘tax return as a political statement’ argument. Certainly, the evidence is very limited and should not be over-estimated (and cannot be expanded, since for other public officials we cannot use elections as yet another measure of political preferences), but at least the main results of this paper are unambiguously confirmed.

Third, we look for a number of special cases: governors reporting income exceeding that of the prime-minister Vladimir Putin and president Dmitriy Medvedev (two most powerful individuals in the Russian federal government). We create a dummy variable equal to 1 for all governors earning more than Putin (Medvedev) and re-estimate *Table 2* using this dummy as the dependent variable and applying logit. The outcomes, however, always provide a negative and significant sign of the voting for Medvedev, thus supporting our main claim even for these special sub-groups of regional leaders (and a different estimation technique).<sup>30</sup>

## 4.2 Loyalty or handicap?

In the next step, our objective is also to disentangle the handicap and the loyalty explanations for the tax returns. For this purpose, as mentioned, we take the tax revenue of the whole family. We exclude governors without wives, as well as governors, who did not report the tax returns of their wives. We control for the business affiliation of the wives (i.e. their direct

<sup>29</sup> For the sample including all regions of Russia.

<sup>30</sup> The results are available at request.

business activity, but also the significant ownership of shares), if this information is available (in many cases it is even more scarce than for governors themselves; we had to screen different media sources in order to generate the dummy).

It is indeed the case that the female members of the governors' households are in many cases earning a significant fraction of the revenue. The most prominent case is Elena Baturina the wife of Yuri Luzhkov the major of the City of Moscow. Her earnings not only exceeded that of her husband by several thousand (!) times, but she also earned almost as much as all other governors together. The wife of Yuri Luzhkov is a clear outlier, so we estimate all regressions with and without City of Moscow, even in spite of the concave transformation. But there are also several other governors' households, where wives earn much more than husbands (in two cases – Primorski krai and Rostov – the revenue of the wife exceeds the revenue of the husband by more than 50 times; these regions belong to the richest in terms of the reported total income of the family of the governor, although the governor himself reports a relatively small income). So, we run a separate regression excluding these two regions, as well as City of Moscow, Kaliningrad and Tver, to account for the impact of strong outliers.

However, for this specification no significant correlation between the shares for Medvedev and the size of the income reported is observed (see *Table 4*). In the only specification where the correlation is significant (at 10% level), this effect is entirely driven by the City of Moscow and disappears when this huge outlier is excluded. In many regressions we do find significant positive impact of the average salary of the bureaucrat and of the business connection of the wife (but not of the husband), once again suggesting that the de-jure transfer of the income and property to the wife is a procedure often employed by the Russian governors. Other effects are clearly not robust.

Furthermore, we have estimated all regressions of *Table 4* using the revenue of the *wife only* as the dependent variable. The reason for using this variant is that, clearly, the punishment for a wife of a governor from the tax authority or prosecutor's office is associated with *her own income*, not the "overall income of the family" (Russian tax law does not provide instances of taxation of families as single entities). The results are even more pronounced: the share of votes received by Medvedev is never significant, regardless of specification. Hence, we can conclude that the handicap hypothesis is a more likely explanation for the effects observed than the loyalty one.

The results also support the absence of reverse causality, which we have assumed so far. It is obvious that the tax burden relevant for any policy decisions is estimated for the whole family, not just for the husband. Hence, if it were the declared income, which determines the interventions of the governors in the regional elections, one would rather see an effect for the family income, not for the individual income of the governor. Yet if the income is used for political signaling, using just the tax return of the governor himself is reasonable. In what follows, however, the issue of endogeneity is examined more carefully.

**Table 4: Determinants of declared family income, 2009; dep. var.: log total personal income from all sources declared by the regional governor and his wife (husband)**

	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
<b>Share of votes for Medvedev in 2008</b>	-0.038 (0.027)	-0.033 (0.025)	-0.035 (0.023)	-0.032 (0.022)	-0.018 (0.012)	<b>-0.046*</b> <b>(0.024)</b>	-0.033 (0.023)	-0.048 (0.030)	-0.038 (0.026)
<b>Age of the governor</b>	-0.725 (0.597)	-0.124 (0.283)	-0.555 (0.442)	-0.077 (0.257)	0.075 (0.146)	-0.563 (0.347)	-0.096 (0.281)	-0.456 (0.319)	-0.165 (0.281)
<b>Age of the governor squared</b>	0.007 (0.005)	0.001 (0.002)	0.005 (0.004)	0.001 (0.002)	0.000 (0.001)	0.005 (0.003)	0.001 (0.002)	0.004 (0.003)	0.001 (0.002)
<b>Year of appointment/ election</b>	-0.037 (0.047)	-0.016 (0.040)	-0.061 (0.048)	-0.036 (0.039)	0.026 (0.025)	-0.072 (0.047)	-0.038 (0.041)	-0.072 (0.051)	-0.04 (0.041)
<b>Business connections</b>	-0.145 (0.518)	0.156 (0.430)	-0.499 (0.535)	-0.149 (0.436)	-0.027 (0.232)	-0.325 (0.467)	-0.145 (0.436)	-0.355 (0.472)	-0.035 (0.413)
<b>Business connections of the wife</b>			<b>1.747***</b> <b>(0.596)</b>	<b>1.305**</b> <b>(0.521)</b>	0.245 (0.247)	<b>1.487***</b> <b>(0.527)</b>	<b>1.296**</b> <b>(0.518)</b>	<b>1.215**</b> <b>(0.500)</b>	<b>1.016**</b> <b>(0.462)</b>
<b>Average salary of a bureaucrat</b>	<b>0.000*</b> <b>(0.000)</b>	0.000 (0.000)	<b>0.000**</b> <b>(0.000)</b>	<b>0.000**</b> <b>(0.000)</b>	<b>0.000**</b> <b>(0.000)</b>	0.000 (0.000)	<b>0.000**</b> <b>(0.000)</b>	0.000 (0.000)	<b>0.000**</b> <b>(0.000)</b>
<b>Education</b>						<b>14.844*</b> <b>(8.237)</b>	1.473 (4.453)		
<b>Log distance from Moscow</b>								-0.566 (0.360)	-0.152 (0.371)
<b>Log territory</b>								0.333 (0.235)	0.218 (0.215)
<b>Log population</b>								<b>0.881**</b> <b>(0.407)</b>	<b>0.698*</b> <b>(0.367)</b>
<b>Income per capita</b>								0.000 (0.000)	0.000 (0.000)
<b>Dummy republic</b>								0.333 (0.530)	0.084 (0.444)
<b>Oil and gas</b>								<b>-0.000**</b> <b>(0.000)</b>	-0.000 (0.000)
<b>Fiscal transfers</b>								<b>5.029**</b> <b>(2.039)</b>	1.812 (1.859)
<b>Constant</b>	104.762 (99.660)	46.641 (82.355)	145.917 (102.222)	85.135 (81.102)	-45.602 (50.293)	167.547* (98.935)	89.507 (85.294)	160.650 (106.997)	90.186 (83.595)
<b>City of Moscow</b>	Yes	No	Yes	No	No	Yes	No	Yes	No
<b>Outlier</b>	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
<b>Observations</b>	56	55	56	55	51	56	55	56	55
<b>R<sup>2</sup></b>	0.190	0.104	0.386	0.294	0.204	0.476	0.295	0.555	0.380

Note: see Table 2



### 4.3 Endogeneity and spatial correlation

Given the importance of the problem of endogeneity, we have also used the two-stage least squares estimator to account for these effects. Specifically, we have searched for an instrument, able to predict the electoral outcome in the Russian regions, which does not influence the reported and the true income of the governor. The instrument applied in this paper is the age of the capital city of the region, as reported by Petrov (2009). The choice of the instrument is based on the following considerations. On the one hand, there are no reasons for ‘older’ cities to be ruled by richer (or more tax compliant) governors than for ‘younger’ cities. The only possible channel could be the impact of the regional wealth on the governor’s income, but as it has been shown before, this variable is always insignificant. Besides, the governors often extract their revenue from connections, businesses and assets outside their actual region and in some cases even abroad. On the other hand, age of the city is likely to be associated with the specifics of the regional culture, which in terms has been a significant factor influencing the emergence of the regional political systems in Russia in the 1990s.

**Table 5: Instrumental variables estimation, 2009**

	(IV1) TOLS	(IV2) TOLS	(IV3) TOLS	(IV4) TOLS	(IV5) TOLS	(IV6) TOLS
Dep. var.	Governor’s income	Governor’s income	Total fam- ily income	Total fam- ily income	Total family income	Total family income
Share of votes for Medvedev in 2008	<b>-0.113**</b> (0.054)	<b>-0.077*</b> (0.040)	-0.111 (0.072)	-0.079 (0.068)	-0.046 (0.052)	-0.010 (0.044)
Age of the governor	<b>-0.437*</b> (0.260)	-0.306 (0.194)	-0.783 (0.539)	-0.680 (0.526)	-0.122 (0.277)	-0.000 (0.234)
Age of the governor squared	<b>0.004*</b> (0.002)	0.003 (0.002)	0.007 (0.005)	0.006 (0.005)	0.001 (0.002)	0.000 (0.002)
Year of appointment/ elec- tion	-0.015 (0.033)	-0.003 (0.025)	-0.069 (0.055)	-0.056 (0.050)	-0.038 (0.036)	-0.024 (0.033)
Business connections	0.579 (0.384)	0.320 (0.280)	-0.348 (0.503)	-0.554 (0.457)	-0.122 (0.436)	-0.348 (0.400)
Business connections of the wife			<b>1.719***</b> (0.553)	<b>1.570***</b> (0.542)	<b>1.301***</b> (0.481)	<b>1.132**</b> (0.477)
Average salary of a bureau- crat	0.000 (0.000)	0.000 (0.000)	<b>0.000***</b> (0.000)	<b>0.000***</b> (0.000)	<b>0.000*</b> (0.000)	<b>0.000***</b> (0.000)
Constant	58.370 (68.367)	28.166 (51.528)	174.041 (116.989)	143.072 (107.044)	90.591 (75.104)	55.417 (67.418)
City of Moscow	Yes	Yes	Yes	Yes	No	No
Tver	Yes	No	Yes	No	Yes	No
Observations	57	56	56	55	55	54
F-stat first stage	12.71***	12.24***	12.46***	12.36***	12.73***	12.66***

Note: see Table 2. Instrument is the age of the capital city of the region, as reported in Petrov (2009)

It is known that in the 1990s and the first half of the 2000s Russian regions had remarkably different political systems, varying from outright autocracies to weak democracies (see

Gel'man 1999, and Obydenkova 2007). Although in the late 2000s regional political systems converged due to the federal interventions, some variation still persisted. This variation (captured by the age of the capital city variable, which is also clearly exogenous to other factors determining the regional development in Russia) is likely to affect the strength of the governor vis-à-vis the federal center and the regional elites and the population and therefore his decision to intervene (and the scope of intervention) in the federal elections held in his region (for example, the costs of intervention in more pluralistic regions could be prohibitive). Even though governors are appointed, they still have to actively interact with the regional politicians and bureaucrats and thus are unavoidably influenced by the “regional political specifics”.

*Table 5* reports the results of the estimations. Our instrument has excellent statistical properties with the first-stage F-statistics well above 10. As expected, we find a highly significant and negative effect for the income of the governor and insignificant effect for the total family income. The only statistical problem we encounter is that once included in the second stage regression, age of the city (somewhat counter-intuitively) is also significant. However, this effect is driven just by one region: Tver (one of the oldest Russian cities (pre-dating Moscow), which, as mentioned, is currently administered by one of the richest governors, which we have treated as an outlier before). The fit of the appointment of this extremely rich governor and the age of the city is likely to be a coincidence; excluding Tver, the significant impact of the age of the city in the second stage unambiguously disappears, and all other properties of the instrument (and findings) remain the same. Thus, it is possible to conclude that our instrumentation strategy provides at least some limited evidence that our results are not driven by endogeneity (although we have to acknowledge the possible limitations of our instruments, which are typical for the majority of empirical papers).

Yet another problem we have to examine is the presence of the spatial correlation in the tax returns of Russian governors. It can be objective (suggesting that the federal government has somewhat similar patterns of appointment for geographically proximate regions – some evidence in favor of this claim is observed in the Northern Caucasus, which is however currently a very special region for the federal policy due to the continuing instability and military and terrorist attacks) or subjective (this scenario is even more interesting, since it suggests that governors' signals are correlated – thus, there may be some form of ‘collective signaling’ and cooperation among regional leaders present in Russia). Therefore we estimate spatial regressions (using both spatial lag and spatial error variants). We use two spatial weighting matrices: the simple border matrix (which assigns 1 to each pair of regions sharing common borders and 0 otherwise; we had to exclude from this estimation Kaliningrad – the Russian exclave in the Western Europe without internal borders – and Primorski krai – which has borders only to Khabarovski krai, which we had to exclude due to the governor change) and the matrix with inverse railroad travel distances between capital cities of the regions.<sup>31</sup> The results reported in *Table 6* first unambiguously confirm our main claim and second do not show any evidence of spatial correlation of the reported income of the governors.

<sup>31</sup> The matrix is provided by Abramov (2008). Railroad is the most common way of transportation for people and goods in Russia; for regions without railroad connections (mostly in the Northern part of the country) the transportation by other means is taken into account.

**Table 6: Joint signaling hypothesis, spatial regressions, 2009, dep.var.: log personal income from all sources declared by the regional governors**

	(ML1) ML	(ML2) ML	(ML3) ML	(ML4) ML
<b>Share of votes for Medvedev in 2008</b>	<b>-0.034**</b> <b>(0.015)</b>	<b>-0.035**</b> <b>(0.016)</b>	<b>-0.030**</b> <b>(0.013)</b>	<b>-0.035**</b> <b>(0.015)</b>
<b>Age of the governor</b>	-0.194 (0.161)	-0.211 (0.189)	-0.199 (0.136)	-0.280 (0.183)
<b>Age of the governor squared</b>	0.002 (0.001)	0.002 (0.002)	0.002 (0.001)	0.002 (0.002)
<b>Year of appointment/ election</b>	-0.006 (0.021)	-0.006 (0.021)	-0.004 (0.021)	0.006 (0.022)
<b>Business connections</b>	0.429 (0.310)	0.420 (0.314)	0.247 (0.280)	0.226 (0.250)
<b>Average salary of a bureaucrat</b>	<b>0.000*</b> <b>(0.000)</b>	<b>0.000*</b> <b>(0.000)</b>	<b>0.000**</b> <b>(0.000)</b>	0.000 (0.000)
$\lambda$		-0.104 (0.627)		0.287 (0.216)
$\rho$	0.073 (0.484)		-0.158 (0.147)	
<b>Constant</b>	26.857 (42.72)	28.011 (42.311)	24.958 (43.803)	5.983 (42.502)
<b>Observations</b>	57	57	55	55
<b>Wald test <math>\rho = 0</math></b>	0.023		1.144	
<b>LM test <math>\rho = 0</math></b>	0.013		0.726	
<b>Wald test <math>\lambda = 0</math></b>		0.028		1.760
<b>LM test <math>\lambda = 0</math></b>		0.016		1.057

Note: see Table 2

## 5. Discussion

The fact that politicians in non-democratic societies have to use unusual channels to communicate is probably interesting for itself; however, the range of these signals could probably be extended significantly across countries considering the diverging characteristics of each non-democracy. What is more important is that the channel of communication described in this paper has important implications for two streams of literature concentrating on the interaction of taxation and politics. In what follows, we will briefly discuss these implications from a more general theoretical perspective.

First, as mentioned, our work is connected with the discussion of the tax evasion as an outcome of political preferences. The inclusion of variables revealing the political attitude in empirical research has not been systematic so far (Lago-Penas and Lago-Penas 2010). In many cases, they have been omitted due to the lack of data (see discussion in Alm and Torgler, 2006; Cummings et al., 2009), although there are some exceptions: voting behavior, for

example, is included in Prieto et al. (2006). Still, Lago-Penas and Lago-Penas (2010) contend that political attitude tends to be statistically significant and positively correlated with tax morale. Torgler and Schneider (2006) use “trust in state institutions”, “national pride”, and “pro-democratic attitudes” as indicators for political attitudes in their cross-country investigation of tax compliance and find a positive impact on tax compliance. From the theoretical perspective, in an interesting contribution, Schnellenbach (2006) develops a model where tax evasion serves as a mechanism to punish revenue-maximizing governments (the Leviathan) that deviate from the preferred policies of the taxpayer. In an experimental setting, Feld and Tyran (2002) and Wahl et al. (2010) show that increased participation of taxpayers in the decision-making over allocation of tax revenue increases tax compliance; direct democracy also reduces tax evasion (see e.g. Feld and Frey, 2005). Gehlbach (2008) extends the problem to cases when promises of businesses in terms of tax evasion in the bargaining with politicians are unenforceable, and therefore the general taxability of a sector should play a role.

We contribute to this literature by formulating a distinct mode of how political preferences can influence the willingness to pay taxes, which is very different from usually acknowledged in the literature. Specifically, the handicap hypothesis of this paper suggests that tax evasion can go down not only in case public policies are approved by the voters and organized interests (taking into account their ability to credibly commit to reduce the tax evasion) but also as a manifestation of signalling of relative political strength of the taxpayer to the government. It should be noted that our results apply only to a specific subset of taxpayers; we concentrate our attention on high-ranked politicians and businessmen with strong political presence.<sup>32</sup> However, the impact of this factor on the overall tax evasion should not be under-estimated. Many developing countries with non-democratic regimes have extremely skewed income distribution. The behaviour of a small group of wealthy businessmen and politicians may therefore account for a lion’s share of the public revenues from taxation (especially if one conjectures that similar logic guides their personal tax returns and the tax evasion behaviour of the companies they control<sup>33</sup>; in Russia, as of 2005, 302 largest taxpayers accounted for 47% of the tax revenue, see Serdyukov 2006<sup>34</sup>).

Second, there is a link between our findings and the academic discourse on the “No Taxation without Representation” thesis. The idea of these studies almost directly follows the catchphrase of the American Revolution: higher taxation (i.e. perceived tax burden) results in demand for democracy. First propositions in this field were formulated by Joseph Schumpeter and Otto Heinze in the early 20th century. They studied the historical background mainly from the 13th to 17th century and found consistent evidence that the need for taxes in totalitarian nations repeatedly invoked the evolution of early forms of representative government (see for instance Schumpeter 1918). Ample evidence for the case of “taxation produces representation” has been provided for a range of countries, including Kuwait and Qatar (Crystal 1990), Iran (Shambayati 1994), Congo (Clark 1997), Gabon (Yates 1996) and Indonesia (Törnquist 1990), Nigeria (Berger 2009) as well as for international samples (Ross 2004;

<sup>32</sup> Furthermore, the Russian governors are quite unlike the standard taxpayers assumed in the literature because tax returns are public (it could make “political signalling” more attractive). However, in a non-democratic system the key “recipient” of any messages in the political dialogue is the central government and not the general public (even if the information is supposedly reported to the population), so one could expect wealthy businessmen and politicians to take this issue into account regardless of public access to the data.

<sup>33</sup> Strictly speaking, the latter statement has not been shown in this paper but seems to be reasonable conjecture.

<sup>34</sup> As a caveat, one should mention that this number also includes state-owned companies; however, there is substantial evidence of tax evasion of this group of businesses as well.

Herb 2005; Baskaran and Bigsten 2010). Our key contribution to this discussion is to make tax burden endogenous to political preferences. Since the handicap signalling reduces tax evasion from influential governors, it increases their tax burden and is likely to change their attitude towards the existing state (in line with ‘No Taxation without Representation’ argument). Of course, strength of the governor does not necessarily correlate with the preference for democracy; but if one looks at the historical path of the evolution of democracy as an outcome of negotiations in the ‘king-and-council’ systems (Congleton 2001), some conjectures are possible.

Strong governors are more likely to prefer the ‘council’ side of this system (potentially associated rather with larger electorate, but not with the democracy); but it is the strengthening of the ‘council’, which (often unexpectedly for the politicians themselves) could open the road to the increasing level of democracy in the long run (see e.g. Congleton 2007).

## 6. Conclusion

This paper hypothesizes that the relation between tax compliance and political preferences of the taxpayers can actually be more complex than is usually assumed in the literature. Specifically, in non-democratic “blackmail states” wealthy politicians and bureaucrats may become unsuspectedly honest in their tax reporting to deliver a political message to the government – showing their reassurance in the strength of their position against potential blackmail from the government. It is generally the case that being honest in tax reporting creates larger risks for taxpayers in developing countries than cheating, since it just makes the investigation for tax authorities simpler and most likely results in increased expropriation. Therefore highly tax-compliant behavior may send a specific political message to the central government. We have tested this conjecture using Russian data of the tax returns of the regional governors for the fiscal year 2009, and indeed found out that political preferences and tax reporting of the governors are correlated: in regions where governors had to answer for relatively low election outcomes for the Kremlin candidates and parties at the federal elections, the respective governors in turn also reported larger revenue in their tax returns.

The study acknowledges its limitations. First and foremost, our ability to control for the real income of the governors is limited, and thus we cannot completely exclude the omitted variable problem in our results. However, we have attempted to resolve this using a variety of measures, and, as one should recognize, in tax evasion studies it is hardly ever possible to gather the entirely accurate information on the true tax revenue. We have also employed a TSLS approach to solve the problem of endogeneity but accept that our instruments are not uncontestable.

Second, the Russian case may be somewhat specific, given that the governors make their tax returns publicly available. Nevertheless, we believe that the very setup where “cheating is safe” and “being honest is sending a political message” may be observed in many developing countries with non-democratic governments that, for one thing, restrict political communication, and, for another thing, misuse tax law to fight their political opponents. This holds in particular for the countries which at the same time exhibit notoriously high tax evasion – as it is very often the case. In fact, using tax evasion accusations against political enemies in non-democracies has been widespread practice in, for example, Kazakhstan and Uzbekistan (see

Libman 2010), but also in Singapore (Golosov 2011); blackmail state practices have been reported in Ukraine before the “Orange revolution” (Darden 2008) and Peru (McMillan and Zoido 2004). Therefore the applicability and validity of our findings extends beyond the special Russian case.

## References

- ABRAMOV, A. (2008): The Shortest Railway Distance between Capital Cities of Russian Regions. Mimeo
- ALESINA, A (1988): Credibility and Policy Convergence in a Two-Party System with Rational Voters. *American Economic Review* 78(4):796-805
- ALM, J., and TORGLER B. (2006): Culture differences and tax morale in the United States and in Europe. *Journal of Economic Psychology* 27: 224-246.
- BASKARAN, T. and ARNE, B. (2010): Fiscal Capacity and Governmental Accountability in Sub-Saharan Africa. Mimeo
- BECKER, J., PEICHL, A., and RINKE, J. (2009): Politicians’ Outside Earnings and Electoral Competition. *Public Choice* 140(3-4): 379-394
- BERGER, D. (2009): Taxes, Institutions, and Local Governance: Evidence from a Natural Experiment in Colonial Nigeria. Mimeo
- CHAPKOVSKIY, F., and DYATLIKOVICH; V. (2011): Konverty Vozvrashchayutsya. *Russkiy Reporter*, April 14
- CLARK, J. (1997): Petro-Politics in Congo. *Journal of Democracy* 8 (3): 62-76.
- CONGLETON, R. (2001): On the Durability of King and Council: The Continuum between Dictatorship and Democracy. *Constitutional Political Economy* 12(3): 193-215
- CONGLETON, R. (2007): From Royal to Parliamentary Rule without Revolution: The Economics of Constitutional Exchange within Divided Governments. *European Journal of Political Economy* 23(2):261-284
- COWELL, F. (1992): Tax evasion and inequity. *Journal of Economic Psychology* 13(4): 521-543.
- CRYSTAL, J. (1990): *Oil and Politics in the Gulf: Rulers and Merchants in Kuwait and Qatar*. New York: Cambridge University Press.
- CUMMINGS, R., MARTINEZ-VAZQUEZ, J., and MCKEE, T.M. (2009): Tax Morale Affects Tax Compliance: Evidence from Surveys and an Artefactual Field Experiment. *Journal of Economic Behaviour & Organization* 70(3): 447-457.
- DARDEN, K. (2001): Blackmail as a Tool of State Domination: Ukraine under Kuchma. *East European Constitutional Review*, 10, Spring/Summer
- DARDEN, K. (2008): The Integrity of Corrupt States: Graft as an Informal Political Institution. *Politics and Society* 36(1)

- FALKINGER, J. (1995): Tax Evasion, Consumption of Public Goods and Fairness. *Journal of Economic Psychology*, 16 (1): 63-72
- FEARON, J.D. (1994): Domestic Political Audience and the Escalation of International Disputes. *American Political Science Review* 88:577-92
- FEARON, J.D. (1997): Signalling Foreign Policy Interests. *Journal of Conflict Resolution* 41:68-90
- FELD, L.P., and TYRAN, J.R. (2002): Tax Evasion and Voting: An Experimental Analysis. *Kyklos* 55:197-222
- FELD, L.P., and FREY, B. (2005): Illegal, Immoral, Fattening or What? How Deterrence and Responsive Regulation Shape Tax Morale, in: BAJADA, C., and SCHNEIDER, F. (eds.): Size, Cause and Consequences of the Underground Economy. Aldershot: Ashgate
- FELD, L.P., and FREY, B. (2007): Tax Compliance as the Result of a Psychological Tax Contract: The Role of Incentives and Responsive Regulation. *Law and Policy* 29:102-120
- GEHLBACH, S. (2008): Representation through Taxation: Revenue, Politics, and Development in Postcommunist States. Cambridge: Cambridge University Press
- GEHLBACH, S., SONIN, K., and ZHURAVSKAYA, E. (2010): Businessmen Candidates. *American Journal of Political Science* 54(3):718-735
- GEL'MAN, V. (1999): Regime Transition, Uncertainty and Prospects of Democratization: The Politics of Russia's Regions in a Comparative Perspective. *Europe-Asia Studies* 51:939-956
- GOLOSOV, G. (2011): Mir Partiynykh Sistem i Partiyne Sistemy Mira. Mimeo
- GORODNICHENKO, Y., MARTINEZ-VAZQUEZ, J. and SABIRIANOVA PETER, K. (2009): Myth and Reality of Flat Tax Reform: Micro Estimates of Tax Evasion Response and Welfare Effects in Russia, *Journal of Political Economy* 117: 504-554
- HERB, M. (2005): No Representation without Taxation? Rents, Development and Democracy. *Comparative Politics* 37(3):297-317
- HERRMANN-PILLATH, C. (2007): Deliberative Trade Policy. *Evolutionary and Institutional Economics Review* 3(2):209-238
- IVANOVA, A., KEEN, M., and KLEMM, A. (2005): The Russian Flat Tax Reform. *Economic Policy* 20: 397-444
- JONES Luong, P., and WEINTHAL, E. (2004): Contra Coercion: Russian Tax Reform, Exogenous Shocks, and Negotiated Institutional Change. *American Political Science Review* 98: 139-152
- KEAN, M.P., and MERLO, A. (2010): Money, Political Ambitions, and the Career Decisions of Politicians. *American Economic Journal: Microeconomics* 2(3): 186-230
- KOMMERSANT (2011): Vverkh Karmashkami 2011. *Kommersant Vlast*, April 18
- LAGO-PENAS, I., and LAGO-PENAS, S. (2010): The determinants of tax morale in comparative perspective: Evidence from European countries. *European Journal of Political Economy* 26: 441-453

- LIBMAN, A. (2010): Governments and Companies in the Post-Soviet World: Power, Intentions, and Institutional Consistency. *Eurasian Review* 3:41-66
- LIBMAN, A. (2010a): Words or Deeds – What Matters? Experience of Recentralization of Russian Security Agencies. Mimeo
- MCMANN, K.M. (2006): *Economic Autonomy and Democracy: Hybrid Regimes in Russia and Kyrgyzstan*. Cambridge: Cambridge University Press
- MCMILLAN, J., and ZOIDO, P. (2004): How to Subvert Democracy: Montesinos in Peru. *Journal of Economic Perspectives* 18(4):69-92
- MEBANE, W.R., and KALININ, K. (2010): Electoral Fraud in Russia: Vote Counts Analysis Using Second-Digit Mean Test. Mimeo
- MIRONOV, M. (2006): Economics of Spacemen: Estimation of Tax Evasion in Russia. Mimeo
- MYAGKOV, M., and ORDESHOOK, P.C. (2008): Russian Elections: An Oxymoron to Democracy. NCEEER Report
- MYERSON, R.B. (2010): Moral Hazard in High Office and the Dynamics of Aristocracy. Mimeo
- NUREEV, R. (2010, ed.): Ekonomicheskie Sub"ekty Postsovetskoi Rossii (Institucional'nyi Analiz): Desyat' Let Supstya. Vol. 3. Moscow: MONF
- OBYDENKOVA, A. (2007): The International Dimension of Democratization: Testing the Parsimonious Approach. *Cambridge Review of International Affairs* 20(3)
- ORTTUNG, R.W. (2004): Business and Politics in the Russian Regions. *Problems of Post-Communism* 51(2)
- ORTTUNG, R.W. (2010): Otnosheniya Mezhdru Tsentrom i Periferiey. *Pro et Contra* 14(4-5):80-95
- PANEYAKH, E. (2008): Pravila Igru dlya Rossiiskogo Predprinimatel'ya. Kolibri. Moscow
- PEREGUDOV, S.P., LAPINA, N.Y., and SEMENKO, I.S. (2003): *Gruppy Interesov i Rossiyskoe Gosudarstvo*. Moscow: URSS
- PETROV, N. (2005): Siloviki in Russian Regions: New Dogs, Old Tricks. *Journal of Power Institutions in Post-Soviet Societies* (2)
- PETROV, N. (2007): Korporativizm vs. Regionalizm. *Pro et Contra*, July-October: 79-85
- PETROV, N. (2009): Nasledie Imperii I Regionalism. In MILLER, A. (ed.): *Nasledie Imperiy I Budushee Rossii*. Moscow: NLO, pp. 381-454
- PETROVA, N., and KVASHA, M. (2011): Dekoraciya Dokhodov. *Kommersant Dengi* (15), April 18
- PRENDERGAST, C. (1993): A Theory of "Yes Man". *American Economic Review* 83:757-770
- RADAEV, V. (1998): Nekotorye Institucional'nye Usloviya Formirovaniya Rossiyskikh Rynkov. *Sociologicheskii Zhurnal* (3-4)



- REISINGER, W.M., and MORASKI, B.J. (2009): Regional Voting in Russia's Federal Elections and Changing Regional Deference to the Kremlin. University of Iowa Political Science Publication 4-2-2009
- ROSENSON, B.A. (2007): Explaining Legislators' Positions on the Outside Income Limits: Voting on Honoraria Ceilings in the U.S. Senate, 1981-1983. *Public Choice* 133(1-2): 111-128
- ROSS, M.L. (2004): Does Taxation Lead to Representation? *British Journal of Political Science*, 34: 229-249
- SCHNELLENBACH, J. (2006): Tax morale and the taming of Leviathan. *Constitutional Political Economy* 17:117-132.
- SCHUMPETER, J. (1918 (1954)): The Crisis of the Tax State. *International Economic Papers* 4:5-38.
- SERDVUKOV, A.E. (2006): Administrirovanue Nalogov v Rossii: Principy i Puti Razvitiya. *Rossiyskiy Nalogovyi Kurier* (3)
- SHAMBAYATI, H. (1994): The Rentier State, Interest Groups, and the Paradox of Autonomy: State and Business in Turkey and Iran. *Comparative Politics* 26: 307-331
- SIMPSON, A. (2008): Cheating Big: The Logic of Electoral Manipulation. Mimeo
- TORGLER, B., and SCHNEIDER, F., (2007): What Shapes Attitudes Toward Paying Taxes? Evidence from Multicultural European Countries. *Social Science Quarterly* 88 (2): 443-470
- TORNQUIST, O. (1990): Rent Capitalism, State, and Democracy: A Theoretical Proposition. In: BUDIMAN, A. (ed.): *State and Civil Society in Indonesia*. Monash Papers on South-east Asia No. 22, pp. 29-49
- WAHL, I., MUEHLBACHER, S., and KIRCHLER, E. (2010): The Impact of Voting on Tax Payment. *Kyklos* 63(1): 144-158
- VAINBERG, A., and RYBNIKOVA, T. (2006): Institucional'nye i Geograficheskie Faktory Razvitiya Regionov Rossii. Mimeo
- YAKOVLEV, A. (2005): Evolutsiya Strategiy Vzaimodeystviya Biznesa I Vlasti v Rossiyskoy Ekonomike. *Rossiyskiy Zhurnal Menezhmenta* 3: 27-52
- YATES, D. (1996): *The Rentier State in Africa: Oil Rent Dependency and Neocolonialism in the Republic of Gabon*. Trenton: Africa World Press.
- ZAHAVI, A. (1975): Mate Selection – A Selection for a Handicap. *Journal of Theoretical Biology* 53:205-214

## Appendix A: Summary statistics and description of variables

**Table A1: Definition and sources of variables**

Variable	Definition	Period	Source
Administrative expenditures	Total administrative expenditures of the regional administration, RUR mln	2009	Vedomosti
Age	2009 minus year of birth of the governor	2009	Various newspapers, websites of regional administrations
Age of the city	Age of the capital of the region (from its establishment or the first mentioning in the chronicles)	2007	Petrov 2009
Age squared	$(2009 - \text{year of birth})^2$	2009	Own estimation
Average salary of a bureaucrat	Average salary of a bureaucrat in the region, RUR	2009	Federal Service of Public Statistics (Rosstat) = Russian Statistical Authority
Bureaucrat	Dummy: 1 if the governor's professional background is civil servant or bureaucrat, 0 otherwise	2009	Various newspapers, websites of regional administrations
Business connections	Dummy: 1 if the governor is claimed to have personal business connections (not that of his wife), 0 otherwise	2009	Various newspapers and Internet-sources
Business connections of the wife	Dummy: 1 if the wife of the governor (husband of the governor) has reported business connections or owns significant shares of companies, 0 otherwise	2009	Various newspapers and Internet-sources, particularly Slon.ru
Chances against regional administration in courts	Index of chances of an SME to win a lawsuit against the regional administration in a court, based on a survey of SMEs by Opora Rossii, high values indicate chances are higher	2005	Vainberg and Rybnikova, 2006
Corruption perception index	Transparency International / INDEM index, measuring the perception of corruption in the region, from 0 (very low) to 1 (very high)	2002	Vainberg and Rybnikova, 2006
Democracy	Expert opinion evaluation of the level of democracy in Russian regions based on 10 dimensions of democracy, calculated by a panel of the experts of the Moscow Carnegie Center, from 10 (very bad) to 50 (excellent)	1991-2001	Moscow Carnegie Center
Dummy republic	1 if the region has the status of a republic, 0 otherwise	NA	Own estimations
Economist	Dummy: 1 if the governor's professional background is economics, business administration, trade and commerce, 0 otherwise	2009	Various newspapers, websites of regional administrations
Education	Share of population of the region with a university degree or incomplete university education	2002	Russian Census
Fiscal transfers	Fiscal transfers from other budgets over total expenditures of the region's consolidated budget (implementation)	2008	Federal Treasury
FSB central control	Index of connections between director of regional FSB office and the region, from 0 to 3, 0 = no connections, 3 = strong connections	2007	Petrov, 2009

Variable	Definition	Period	Source
Harmful or positive impact of regional governments	Index of relation of regional administration to SMEs (supportive or harmful), based on a survey of SMEs by Opora Rossii, high values indicate more supportive relation	2005	Vainberg and Rybnikova, 2006
Illegal interventions of public officials	Index of illegal interventions of regional bureaucrats in the activity of SMEs, based on a survey of SMEs by Opora Rossii, high values indicate interventions are less widespread	2005	Vainberg and Rybnikova, 2006
Income per capita	Average monthly per capita income of the population, '000 RUR	2008	Federal Service of Public Statistics (Rosstat) = Russian Statistical Authority
Legal protection of SMEs	Rating of regions according to the legal protection of SMEs, based on a survey of SMEs by Opora Rossii, high values indicate better protection	2005	Vainberg and Rybnikova, 2006
Log distance from Moscow	Log distance between the capital of the region and Moscow, thousands of km, 0 for Moscow and Moscow oblast, identical for St. Petersburg and St. Petersburg oblast	NA	Federal Service of Public Statistics (Rosstat) = Russian Statistical Authority
Log income of the family of the governor	Log of the sum of the self-reported income of the governor and his wife (her husband)	2009 (fiscal year from Jan 1 to Dec 31, reporting in spring 2010)	Various newspapers (particularly Vedomosti), websites of regional administrations, Slon.ru
Log income of the governor	Log of the self-reported income of the governor from all sources, '000 RUR	2009 (fiscal year from Jan 1 to Dec 31, reporting in spring 2010)	Various newspapers (particularly Vedomosti), websites of regional administrations, Slon.ru
Log population	Log of the population of the region, mln. people	2008	Federal Service of Public Statistics (Rosstat) = Russian Statistical Authority
Log territory	Log of the territory of the region, mln. sq.km, 0 for Moscow and St. Petersburg	NA	Federal Service of Public Statistics (Rosstat) = Russian Statistical Authority
Military	Dummy: 1 if the governor's professional background is military, 0 otherwise	2009	Various newspapers, websites of regional administrations
Number of appointments	Number of times an individual has been successfully appointed a governor of the region after 2004	2009	Various newspapers, websites of regional administrations
Number of elections	Number of times an individual has been elected to the governor's office	2009	Various newspapers, websites of regional administrations
Oil and gas	Extraction of oil in the region (mln tons) * 1.4 + Extraction of gas in the region (bln. sq. m) * 1.2	2007	Federal Service of Public Statistics (Rosstat) = Russian Statistical Authority
Only appointed	1 if the governor has never been elected, 0 otherwise	2009	Various newspapers, websites of regional administrations
Police central control	Index of connections between director of regional Ministry of Interior office and the region, from 0 to 3, 0 = no connections, 3 = strong connections	2007	Petrov, 2009

<b>Variable</b>	<b>Definition</b>	<b>Period</b>	<b>Source</b>
Privileges to individual companies	Index of presence of privileges for individual companies granted by the regional government, based on a survey of SMEs by Opora Rossii, high values indicate more active use of company-specific privileges	2005	Vainberg and Rybnikova, 2006
Prosecutor central control	Index of connections between director of regional Prosecutor's Office office and the region, from 0 to 3, 0 = no connections, 3 = strong connections	2007	Petrov, 2009
Real level of corruption	Transparency International / INDEM index, measuring the actual level of corruption in the region, from 0 (very low) to 1 (very high)	2002	Vainberg and Rybnikova, 2006
Security of SMEs	Rating of regions according to the security as perceived by SMEs, based on a survey of SMEs by Opora Rossii, high values indicate higher security	2005	Vainberg and Rybnikova, 2006
Share of votes for Medvedev in 2008	Share of votes for Dmintri Medvedev, presidential elections 2008	2008	Central Electoral Committee, IRENA database
Share of votes for Edinaya Rossiya in 2007	Share of votes for Edinaya Rossiya, State Duma elections 2007	2007	Central Electoral Committee, IRENA database
SMEs support by regional governments	Rating of regions according to the support of the SMEs by regional governments, based on a survey of SMEs by Opora Rossii, high values indicate higher support	2005	Vainberg and Rybnikova, 2006
Spread of bribery for SMEs	Index of bribery for SMEs, based on a survey of SMEs by Opora Rossii, high values indicate more active use of bribes by SMEs	2005	Vainberg and Rybnikova, 2006
Transaction costs of SMEs	Rating of regions according to the transaction costs as perceived by SMEs, based on a survey of SMEs by Opora Rossii, high values indicate lower costs	2005	Vainberg and Rybnikova, 2006
Year of appointment / election	Year when the governor was first appointed / elected head of the regional administration	NA	Various newspapers, websites of regional administrations

**Table A2: Summary statistics (for the main sample of Table 2)**

Variable	No. obs.	Mean	Std. dev.	Min	Max
Administrative expenditures	57	2146	3466.803	349	21611
Age	57	55.281	7.734	41.000	75.000
Age of the city	57	457.754	297.701	78.000	1148.000
Age squared	57	3114.719	880.874	1681.000	5625.000
Average salary of a bureaucrat	57	32078.670	12511.440	16657.000	85656.000
Bureaucrat	57	0.491	0.504	0.000	1.000
Business affiliation	57	0.298	0.462	0.000	1.000
Business affiliation of the wife	57	0.298	0.462	0.000	1.000
Chances to win against the regional government in court	56	34.784	14.267	4.200	82.000
Corruption perception index	29	0.594	0.219	0.000	1.000
Dummy republic	57	0.246	0.434	0.000	1.000
Economist	57	0.193	0.398	0.000	1.000
Education	57	0.175	0.040	0.123	0.360
Fiscal transfers	57	0.330	0.177	0.035	0.788
FSB central control	57	0.333	0.913	0.000	3.000
Harmful or positive impact of regional government	56	118.977	23.783	66.000	172.000
Illegal actions of bureaucrats	55	52.007	27.612	12.000	144.000
Income per capita	57	12777.440	4937.884	5651.000	34207.000
Legal protection of SMEs	56	42.571	23.402	1.000	79.000
Log distance from Moscow	57	0.204	1.072	-1.790	2.475
Log income of the governor	57	7.995	0.917	6.667	11.830
Log population	57	7.189	0.834	5.102	9.258
Log territory	57	-2.520	1.251	-4.880	1.132
Log total income of the family of the governor	56	8.559	1.755	6.667	17.248
Military	57	0.035	0.186	0.000	1.000
Number of appointments	57	1.158	0.368	1.000	2.000
Number of elections won	57	1.316	1.152	0.000	3.000
Oil and gas	57	7442.146	42865.760	0.000	323814.000
Only appointed	57	0.351	0.481	0.000	1.000
Police central control	55	0.909	1.351	0.000	3.000
Privileges to individual companies	56	51.596	18.239	14.000	100.000
Prosecutor's Office central control	57	1.053	1.420	0.000	3.000
Real level of corruption	29	0.445	0.317	0.000	1.000
Security of the SMEs	56	41.500	22.611	2.000	79.000
SMEs support from the regional government	56	40.000	22.782	2.000	77.000
Spread of bribery for the SMEs	56	93.675	30.761	38.800	177.300
Transaction costs of SMEs	56	41.000	22.547	1.000	80.000
Votes for Edinaya Rossiya	57	63.942	9.238	50.330	96.120
Votes for Medvedev	57	69.209	7.202	59.260	90.310
Year of election / appointment	57	2001.228	4.648	1991.000	2007.000

## Appendix B: “Profession” and “Business Connection”

We have compiled an extensive data base with biographical data on all Russian governors for the period of 2000 until 2010. The bulk of the data has been extracted from the Russian version of Wikipedia; governor’s individual websites (for an overview see [Governors.ru](http://Governors.ru)), systematic reports on business affiliation of governors and their family members provided by [Slon.ru](http://Slon.ru) and multiple other media sources.

### Profession dummy

All governors have been subdivided according to their profession. We have defined profession as the employment a governor commenced after graduation and in which he worked until eventually entering politics. We were able to identify five groups of profession: i) military; ii) economics, commerce and business; iii) civil servant; and iv) others. The first category includes governors who previously served in the Russian army and entered politics after their professional retirement. The second category comprises businessmen who previously run their own companies, or held influential positions in national business groups (e.g. board members). The third category includes bureaucrats who filled positions in public administrations (e.g. city administrations, ministries, public authorities). All other professions are grouped in category four (e.g. actors, journalist and scientists).

### Business connection dummy

This business connection dummy measures whether a governor has a strong affiliation with a private or public business group. Among others we have identified close business connections in cases where a governor was CEO, president, member of the board of directors, founder, shareholder, or executive in a business group. Thus Victor Kress the Governor of Tomsk was a former board member of RAO UES, or Mintimer Shaimiev the President of Tatarstan was *ex officio* chairman of Tatneft. The business connection classification is based on the available information from our biographical data set, as well as on informal information from trustworthy sources (e.g. for Shaimiev see [www.economist.com/node/15407883](http://www.economist.com/node/15407883)). Eventually, all governors with a business affiliation have been marked with “1”, while the remaining governors have been marked with “0”. The business connection dummy can be regarded as an extension of the profession category “business” which has been described above. Consequently, all governors which have been identified as businessmen are marked as having a business affiliation (“1”), with the exception of the cases when business was transferred to the wives (see below) of the governors or cases when the governors seem to have lost any direct links to their former assets (as in case of the Leningradskaya oblast, where governor Valeriy Serdyukov has been deputy CEO of the *Vorkutaugol’* in the first half of the 1990s; but currently this company belongs to the holding group *Severstal’* and no links between Serdyukov and the company seem to be present; the children of Serdyukov seem to be successful businessmen, however, their business is not directly connected to the previous business affiliation of Serdyukov). Beyond that we were able to identify a number of governors with other professions who also maintained close relationships to business groups.

### Business connection dummy for the wives of the governors

The information on the business connections of the wives of the governors was compiled using similar approach, except much less reliable data. We classified as having business connections all wives of the governors, who are CEOs of *profit-oriented companies* (non-for-profit organizations are excluded) or hold significant amount of shares of other companies. In some cases governors transferred all their business activity to their wives after accepting the office (as it supposedly happened in Primorski krai with the governor Sergei Dar'kin). In this case we assign the business connection to the wife of the governor, not to the governor himself. In the same way, the mayor of Moscow Yuriy Luzhkov does not have business connections, according to our typology, but his wife does.

**Table B1: Summary statistics for the governors included in various regressions of this paper**

Regressions	Baseline sample	Including four regions from Appendix D	Excluding City of Moscow	Excluding City of Moscow, Rostov and Primorski krai (regression (25))	Appointed before 2007 (Table 3)
<b>Number of Governors</b>	<b>57</b>	<b>61</b>	<b>56</b>	<b>54</b>	<b>50</b>
<b>Profession</b>					
Military	2	2	2	2	2
Economist / businessman	11	12	11	10	9
Bureaucrat	28	29	27	27	22
<b>Business Connection</b>	17	18	17	17	15
<b>Business Connection wife</b>	17	18	16	14	14
<b>Age</b>					
Mean	55.281	55.328	54.964	55.000	56.380
Standard deviation	7.734	7.694	7.422	7.397	7.575
Min	41	41	41	41	41
Max	75	75	75	75	75
<b>Year of first appointment / election</b>					
Mean	2001.228	2001.393	2001.098	2001.481	2000.180
Standard deviation	4.648	4.519	4.574	4.563	4.222
Min	1991	1991	1991	1991	1991
Max	2007	2007	2007	2007	2006

## Appendix C: The role of institutional characteristics of the regions

**Table C1: Determinants of declared income, 2009, controlling for institutional characteristics; dep. var.: log personal income from all sources declared by the regional governors**

	(C1) OLS	(C2) OLS	(C3) OLS	(C4) OLS	(C5) OLS	(C6) OLS	(C7) OLS	(C8) OLS	(C9) OLS	(C10) OLS	(C11) OLS
<b>Institutional variable</b>	Legal protection of SMEs	Transaction costs of SMEs	SMEs support by regional governments	Security of SMEs	Privileges to individual companies	Spread of bribery for SMEs	Harmful or positive impact of regional governments	Illegal interventions of public officials	Chances against regional administration in courts	Corruption perception index	Real level of corruption
<b>Share of votes for Medvedev in 2008</b>	<b>-0.034**</b> (0.016)	<b>-0.032*</b> (0.017)	<b>-0.032**</b> (0.014)	<b>-0.035**</b> (0.015)	<b>-0.034**</b> (0.015)	-0.031 (0.019)	<b>-0.032**</b> (0.014)	<b>-0.034**</b> (0.016)	<b>-0.037**</b> (0.018)	<b>-0.045*</b> (0.023)	<b>-0.051*</b> (0.025)
<b>Age</b>	-0.229 (0.196)	-0.200 (0.169)	-0.225 (0.176)	-0.253 (0.180)	-0.206 (0.166)	-0.195 (0.172)	-0.260 (0.174)	-0.248 (0.186)	-0.244 (0.184)	<b>-0.503*</b> (0.286)	<b>-0.478*</b> (0.277)
<b>Age squared</b>	0.002 (0.002)	0.002 (0.001)	0.002 (0.001)	0.002 (0.002)	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)	0.002 (0.002)	0.002 (0.002)	<b>0.004*</b> (0.002)	<b>0.004*</b> (0.002)
<b>Year of appointment/ election</b>	-0.004 (0.022)	-0.004 (0.022)	-0.006 (0.023)	-0.002 (0.024)	-0.005 (0.022)	-0.002 (0.023)	-0.010 (0.024)	-0.000 (0.025)	-0.007 (0.023)	0.019 (0.028)	0.006 (0.032)
<b>Business connections</b>	0.419 (0.312)	0.426 (0.332)	0.456 (0.347)	0.423 (0.327)	0.431 (0.336)	0.408 (0.340)	0.458 (0.331)	0.348 (0.304)	0.466 (0.350)	0.493 (0.369)	0.521 (0.391)
<b>Average salary of a bureaucrat</b>	<b>0.000*</b> (0.000)	<b>0.000*</b> (0.000)	0.000 (0.000)	0.000 (0.000)	<b>0.000*</b> (0.000)	<b>0.000*</b> (0.000)	0.000 (0.000)	0.000 (0.000)	<b>0.000*</b> (0.000)	0.000 (0.000)	0.000 (0.000)
<b>Institutions</b>	0.002 (0.006)	-0.001 (0.007)	0.004 (0.006)	0.006 (0.005)	-0.001 (0.004)	0.002 (0.007)	-0.008 (0.006)	-0.006 (0.004)	0.006 (0.008)	0.640 (0.508)	0.329 (0.467)
<b>Constant</b>	23.503 (43.820)	23.664 (45.770)	27.851 (47.479)	20.531 (48.216)	25.831 (45.350)	18.250 (47.219)	37.530 (50.555)	17.842 (50.663)	30.303 (47.641)	-13.539 (58.466)	13.165 (67.817)
<b>Observations</b>	56	56	56	56	56	56	56	55	56	29	29
<b>R<sup>2</sup></b>	0.190	0.188	0.195	0.208	0.187	0.192	0.224	0.203	0.194	0.222	0.212

Note: see Table 2



## Appendix D: Impact of former governors

Table D1: Determinants of declared income, 2009; dep. var.: log personal income from all sources declared by the regional governors and former regional governors, Komi Republic, Volgograd, Krasnoyarsk and Evreyskaya Autonomous Oblast included

	(D1) OLS	(D2) OLS	(D3) OLS	(D4) OLS	(D5) OLS	(D6) OLS	(D7) OLS	(D8) OLS	(D9) OLS
Share of votes for Medvedev in 2008	<b>-0.043***</b> (0.015)	<b>-0.045***</b> (0.016)	<b>-0.046***</b> (0.015)	<b>-0.042**</b> (0.016)	<b>-0.047***</b> (0.015)	<b>-0.044***</b> (0.016)	<b>-0.044**</b> (0.017)	<b>-0.032*</b> (0.017)	<b>-0.033*</b> (0.018)
Age	<b>-0.451**</b> (0.198)	<b>-0.404**</b> (0.191)	<b>-0.346**</b> (0.171)	-0.278 (0.177)	<b>-0.272*</b> (0.157)	-0.263 (0.167)	-0.277 (0.185)	-0.264 (0.183)	-0.263 (0.186)
Age squared	<b>0.004**</b> (0.002)	<b>0.003**</b> (0.002)	<b>0.003**</b> (0.001)	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)
Year of appointment/ election	0.000 (0.024)	0.007 (0.028)	-0.007 (0.025)	-0.015 (0.024)	-0.012 (0.025)	-0.019 (0.024)	-0.020 (0.026)	-0.019 (0.025)	-0.019 (0.026)
Military		-0.408 (0.298)							
Economist		0.180 (0.560)							
Bureaucrat		-0.427 (0.315)							
Business connections			0.524 (0.324)	0.521 (0.322)	<b>0.550*</b> (0.327)	0.540 (0.328)	0.537 (0.345)	0.548 (0.341)	0.548 (0.346)
Average salary of a bureaucrat				0.000 (0.000)		0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Administrative expenditures					<b>0.000**</b> (0.000)				
Education						3.295 (2.126)			
Police central control							-0.006 (0.100)		
FSB central control							0.024 (0.101)		
Prosecutor central control							0.003 (0.079)		
Log distance from Moscow								-0.243 (0.190)	-0.249 (0.235)
Log territory								0.064 (0.170)	0.065 (0.180)
Log population								0.132 (0.169)	0.139 (0.186)
Income per capita								0.000 (0.000)	0.000 (0.000)
Dummy republic								0.070 (0.310)	0.069 (0.312)
Oil and gas								<b>-0.000**</b> (0.000)	<b>-0.000**</b> (0.000)
Fiscal transfers									0.074 (1.067)
Constant	23.518 (50.370)	8.989 (55.534)	35.774 (50.618)	48.668 (48.178)	42.220 (50.195)	55.101 (49.607)	57.822 (52.029)	53.854 (51.146)	54.858 (52.979)
Observations	61	61	61	61	61	61	56	61	61
R <sup>2</sup>	0.161	0.229	0.213	0.238	0.232	0.253	0.241	0.329	0.329

Note: see Table 2

## Appendix E: Appointments and elections

**Table E1: Determinants of declared income, 2009; impact of appointment and election history of the governor**

	(E1) OLS	(E2) OLS	(E3) OLS	(E4) OLS	(E5) OLS	(E6) OLS
Dep. var.	Governor's income	Governor's income	Governor's income	Total fam- ily income	Total fam- ily income	Total fam- ily income
Share of votes for Medvedev in 2008	<b>-0.035**</b> (0.015)	<b>-0.033**</b> (0.015)	<b>-0.033**</b> (0.015)	-0.035 (0.024)	-0.033 (0.023)	-0.031 (0.023)
Age of the governor	-0.160 (0.171)	-0.136 (0.152)	-0.151 (0.172)	-0.529 (0.438)	-0.569 (0.432)	-0.615 (0.430)
Age of the governor squared	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.005 (0.004)	0.005 (0.004)	0.005 (0.004)
Year of appointment/ elec- tion	-0.035 (0.046)	<b>-0.136**</b> (0.066)	<b>-0.139**</b> (0.067)	-0.082 (0.081)	<b>-0.205*</b> (0.117)	<b>-0.213*</b> (0.121)
Business connections	0.434 (0.322)	0.432 (0.318)	0.429 (0.314)	-0.489 (0.542)	-0.430 (0.513)	-0.440 (0.505)
Business connections of the wife				<b>1.735***</b> (0.610)	<b>1.540**</b> (0.582)	<b>1.526**</b> (0.584)
Average salary of a bureau- crat	0.000 (0.000)	<b>0.000**</b> (0.000)	0.000 (0.000)	<b>0.000**</b> (0.000)	<b>0.000***</b> (0.000)	<b>0.000**</b> (0.000)
Only appointed	0.309 (0.527)		-0.163 (0.690)	0.232 (0.706)		-0.571 (0.823)
Number of elections won		<b>-0.506**</b> (0.239)	-0.574 (0.362)		-0.608 (0.381)	<b>-0.852*</b> (0.483)
Number of appointments		-0.338 (0.226)	-0.350 (0.243)		0.516 (0.523)	0.472 (0.522)
Constant	84.018 (90.045)	287.546** (134.037)	292.713** (137.516)	188.152 (164.420)	434.905* (238.866)	453.015* (245.075)
Observations	57	57	57	56	56	56
R <sup>2</sup>	0.198	0.245	0.247	0.388	0.428	0.434

Notes: See Table 2. Excluding City of Moscow from regressions (E4) – (E6) does not change the insignificance of the Presidential elections 2008

**FRANKFURT SCHOOL / HFB – WORKING PAPER SERIES**

<b>No.</b>	<b>Author/Title</b>	<b>Year</b>
168	Kostka, Genia / Shin, Kyoung Energy Service Companies in China: The Role of Social Networks and Trust	2011
167	Andriani, Pierpaolo / Herrmann-Pillath, Carsten Performing Comparative Advantage: The Case of the Global Coffee Business	2011
166.	Klein, Michael / Mayer, Colin Mobile Banking and Financial Inclusion: The Regulatory Lessons	2011
165.	Cremers, Heinz / Hewicker, Harald Modellierung von Zinsstrukturkurven	2011
164.	Roßbach, Peter / Karlow, Denis The Stability of Traditional Measures of Index Tracking Quality	2011
163.	Libman, Alexander / Herrmann-Pillath, Carsten / Yarav, Gaudav Are Human Rights and Economic Well-Being Substitutes? Evidence from Migration Patterns across the Indian States	2011
162.	Herrmann-Pillath, Carsten / Andriani, Pierpaolo Transactional Innovation and the De-commoditization of the Brazilian Coffee Trade	2011
161.	Christian Büchler, Marius Buxkaemper, Christoph Schalast, Gregor Wedell Incentivierung des Managements bei Unternehmenskäufen/Buy-Outs mit Private Equity Investoren – eine empirische Untersuchung –	2011
160.	Herrmann-Pillath, Carsten Revisiting the Gaia Hypothesis: Maximum Entropy, Kauffman´s “Fourth Law” and Physiosemeiosis	2011
159.	Herrmann-Pillath, Carsten A ‘Third Culture’ in Economics? An Essay on Smith, Confucius and the Rise of China	2011
158.	Boeing, Philipp / Sandner, Philipp The Innovative Performance of China’s National Innovation System	2011
157.	Herrmann-Pillath, Carsten Institutions, Distributed Cognition and Agency: Rule-following as Performative Action	2011
156.	Wagner, Charlotte From Boom to Bust: How different has microfinance been from traditional banking?	2010
155.	Libman Alexander / Vinokurov, Evgeny Is it really different? Patterns of Regionalisation in the Post-Soviet Central Asia	2010
154.	Libman, Alexander Subnational Resource Curse: Do Economic or Political Institutions Matter?	2010
153.	Herrmann-Pillath, Carsten Meaning and Function in the Theory of Consumer Choice: Dual Selves in Evolving Networks	2010
152.	Kostka, Genia / Hobbs, William Embedded Interests and the Managerial Local State: Methanol Fuel-Switching in China	2010
151.	Kostka, Genia / Hobbs, William Energy Efficiency in China: The Local Bundling of Interests and Policies	2010
150.	Umber, Marc P. / Grote, Michael H. / Frey, Rainer Europe Integrates Less Than You Think. Evidence from the Market for Corporate Control in Europe and the US	2010
149.	Vogel, Ursula / Winkler, Adalbert Foreign banks and financial stability in emerging markets: evidence from the global financial crisis	2010
148.	Libman, Alexander Words or Deeds – What Matters? Experience of Decentralization in Russian Security Agencies	2010
147.	Kostka, Genia / Zhou, Jianghua Chinese firms entering China’s low-income market: Gaining competitive advantage by partnering governments	2010
146.	Herrmann-Pillath, Carsten Rethinking Evolution, Entropy and Economics: A triadic conceptual framework for the Maximum Entropy Principle as applied to the growth of knowledge	2010
145.	Heidorn, Thomas / Kahlert, Dennis Implied Correlations of iTraxx Tranches during the Financial Crisis	2010
144	Fritz-Morgenthal, Sebastian G. / Hach, Sebastian T. / Schalast, Christoph M&A im Bereich Erneuerbarer Energien	2010

143.	Birkmeyer, Jörg / Heidorn, Thomas / Rogalski, André Determinanten von Banken-Spreads während der Finanzmarktkrise	2010
142.	Bannier, Christina E. / Metz, Sabrina Are SMEs large firms en miniature? Evidence from a growth analysis	2010
141.	Heidorn, Thomas / Kaiser, Dieter G. / Voinea, André The Value-Added of Investable Hedge Fund Indices	2010
140.	Herrmann-Pillath, Carsten The Evolutionary Approach to Entropy: Reconciling Georgescu-Roegen's Natural Philosophy with the Maximum Entropy Framework	2010
139.	Heidorn, Thomas / Löw, Christian / Winker, Michael Funktionsweise und Replikationstil europäischer Exchange Traded Funds auf Aktienindices	2010
138.	Libman, Alexander Constitutions, Regulations, and Taxes: Contradictions of Different Aspects of Decentralization	2010
137.	Herrmann-Pillath, Carsten / Libman, Alexander / Yu, Xiaofan State and market integration in China: A spatial econometrics approach to 'local protectionism'	2010
136.	Lang, Michael / Cremers, Heinz / Hentze, Rainald Ratingmodell zur Quantifizierung des Ausfallrisikos von LBO-Finanzierungen	2010
135.	Bannier, Christina / Feess, Eberhard When high-powered incentive contracts reduce performance: Choking under pressure as a screening device	2010
134.	Herrmann-Pillath, Carsten Entropy, Function and Evolution: Naturalizing Peircian Semiosis	2010
133.	Bannier, Christina E. / Behr, Patrick / Güttler, Andre Rating opaque borrowers: why are unsolicited ratings lower?	2009
132.	Herrmann-Pillath, Carsten Social Capital, Chinese Style: Individualism, Relational Collectivism and the Cultural Embeddedness of the Institutions-Performance Link	2009
131.	Schäffler, Christian / Schmaltz, Christian Market Liquidity: An Introduction for Practitioners	2009
130.	Herrmann-Pillath, Carsten Dimensionen des Wissens: Ein kognitiv-evolutionärer Ansatz auf der Grundlage von F.A. von Hayeks Theorie der „Sensory Order“	2009
129.	Hankir, Yassin / Rauch, Christian / Umber, Marc It's the Market Power, Stupid! – Stock Return Patterns in International Bank M&A	2009
128.	Herrmann-Pillath, Carsten Outline of a Darwinian Theory of Money	2009
127.	Cremers, Heinz / Walzner, Jens Modellierung des Kreditrisikos im Portfoliofall	2009
126.	Cremers, Heinz / Walzner, Jens Modellierung des Kreditrisikos im Einwertpapierfall	2009
125.	Heidorn, Thomas / Schmaltz, Christian Interne Transferpreise für Liquidität	2009
124.	Bannier, Christina E. / Hirsch, Christian The economic function of credit rating agencies - What does the watchlist tell us?	2009
123.	Herrmann-Pillath, Carsten A Neurolinguistic Approach to Performativity in Economics	2009
122.	Winkler, Adalbert / Vogel, Ursula Finanzierungsstrukturen und makroökonomische Stabilität in den Ländern Südosteuropas, der Türkei und in den GUS-Staaten	2009
121.	Heidorn, Thomas / Rupprecht, Stephan Einführung in das Kapitalstrukturmanagement bei Banken	2009
120.	Roszbach, Peter Die Rolle des Internets als Informationsbeschaffungsmedium in Banken	2009
119.	Herrmann-Pillath, Carsten Diversity Management und diversitätsbasiertes Controlling: Von der „Diversity Scorecard“ zur „Open Balanced Scorecard“	2009
118.	Hölscher, Luise / Clasen, Sven Erfolgsfaktoren von Private Equity Fonds	2009

117.	Banner, Christina E. Is there a hold-up benefit in heterogeneous multiple bank financing?	2009
116.	Roßbach, Peter / Gießamer, Dirk Ein eLearning-System zur Unterstützung der Wissensvermittlung von Web-Entwicklern in Sicherheitsthemen	2009
115.	Herrmann-Pillath, Carsten Kulturelle Hybridisierung und Wirtschaftstransformation in China	2009
114.	Schalast, Christoph: Staatsfonds – „neue“ Akteure an den Finanzmärkten?	2009
113.	Schalast, Christoph / Alram, Johannes Konstruktion einer Anleihe mit hypothekarischer Besicherung	2009
112.	Schalast, Christoph / Bolder, Markus / Radünz, Claus / Siepmann, Stephanie / Weber, Thorsten Transaktionen und Servicing in der Finanzkrise: Berichte und Referate des Frankfurt School NPL Forums 2008	2009
111.	Werner, Karl / Moormann, Jürgen Efficiency and Profitability of European Banks – How Important Is Operational Efficiency?	2009
110.	Herrmann-Pillath, Carsten Moralische Gefühle als Grundlage einer wohlstandschaffenden Wettbewerbsordnung: Ein neuer Ansatz zur erforschung von Sozialkapital und seine Anwendung auf China	2009
109.	Heidorn, Thomas / Kaiser, Dieter G. / Roder, Christoph Empirische Analyse der Drawdowns von Dach-Hedgefonds	2009
108.	Herrmann-Pillath, Carsten Neuroeconomics, Naturalism and Language	2008
107.	Schalast, Christoph / Benita, Barten Private Equity und Familienunternehmen – eine Untersuchung unter besonderer Berücksichtigung deutscher Maschinen- und Anlagenbauunternehmen	2008
106.	Banner, Christina E. / Grote, Michael H. Equity Gap? – Which Equity Gap? On the Financing Structure of Germany’s Mittelstand	2008
105.	Herrmann-Pillath, Carsten The Naturalistic Turn in Economics: Implications for the Theory of Finance	2008
104.	Schalast, Christoph (Hrsg.) / Schanz, Kay-Michael / Scholl, Wolfgang Aktionärschutz in der AG falsch verstanden? Die Leica-Entscheidung des LG Frankfurt am Main	2008
103.	Banner, Christina E./ Müsch, Stefan Die Auswirkungen der Subprime-Krise auf den deutschen LBO-Markt für Small- und MidCaps	2008
102.	Cremers, Heinz / Vetter, Michael Das IRB-Modell des Kreditrisikos im Vergleich zum Modell einer logarithmisch normalverteilten Verlustfunktion	2008
101.	Heidorn, Thomas / Pleißner, Mathias Determinanten Europäischer CMBS Spreads. Ein empirisches Modell zur Bestimmung der Risikoaufschläge von Commercial Mortgage-Backed Securities (CMBS)	2008
100.	Schalast, Christoph (Hrsg.) / Schanz, Kay-Michael Schaeffler KG/Continental AG im Lichte der CSX Corp.-Entscheidung des US District Court for the Southern District of New York	2008
99.	Hölscher, Luise / Haug, Michael / Schweinberger, Andreas Analyse von Steueramnestiedaten	2008
98.	Heimer, Thomas / Arend, Sebastian The Genesis of the Black-Scholes Option Pricing Formula	2008
97.	Heimer, Thomas / Hölscher, Luise / Werner, Matthias Ralf Access to Finance and Venture Capital for Industrial SMEs	2008
96.	Böttger, Marc / Guthoff, Anja / Heidorn, Thomas Loss Given Default Modelle zur Schätzung von Recovery Rates	2008
95.	Almer, Thomas / Heidorn, Thomas / Schmaltz, Christian The Dynamics of Short- and Long-Term CDS-spreads of Banks	2008
94.	Barthel, Erich / Wollersheim, Jutta Kulturunterschiede bei Mergers & Acquisitions: Entwicklung eines Konzeptes zur Durchführung einer Cultural Due Diligence	2008
93.	Heidorn, Thomas / Kunze, Wolfgang / Schmaltz, Christian Liquiditätsmodellierung von Kreditzusagen (Term Facilities and Revolver)	2008
92.	Burger, Andreas Produktivität und Effizienz in Banken – Terminologie, Methoden und Status quo	2008
91.	Löchel, Horst / Pecher, Florian The Strategic Value of Investments in Chinese Banks by Foreign Financial Insitutions	2008

90.	Schalast, Christoph / Morgenschweis, Bernd / Sprengeter, Hans Otto / Ockens, Klaas / Stachuletz, Rainer / Safran, Robert Der deutsche NPL Markt 2007: Aktuelle Entwicklungen, Verkauf und Bewertung – Berichte und Referate des NPL Forums 2007	2008
89.	Schalast, Christoph / Stralkowski, Ingo 10 Jahre deutsche Buyouts	2008
88.	Bannier, Christina E./ Hirsch, Christian The Economics of Rating Watchlists: Evidence from Rating Changes	2007
87.	Demidova-Menzel, Nadeshda / Heidorn, Thomas Gold in the Investment Portfolio	2007
86.	Hölscher, Luise / Rosenthal, Johannes Leistungsmessung der Internen Revision	2007
85.	Bannier, Christina / Hänsel, Dennis Determinants of banks' engagement in loan securitization	2007
84.	Bannier, Christina "Smoothing" versus "Timeliness" - Wann sind stabile Ratings optimal und welche Anforderungen sind an optimale Berichtsregeln zu stellen?	2007
83.	Bannier, Christina E. Heterogeneous Multiple Bank Financing: Does it Reduce Inefficient Credit-Renegotiation Incidences?	2007
82.	Cremers, Heinz / Löhr, Andreas Deskription und Bewertung strukturierter Produkte unter besonderer Berücksichtigung verschiedener Marktszenarien	2007
81.	Demidova-Menzel, Nadeshda / Heidorn, Thomas Commodities in Asset Management	2007
80.	Cremers, Heinz / Walzner, Jens Risikosteuerung mit Kreditderivaten unter besonderer Berücksichtigung von Credit Default Swaps	2007
79.	Cremers, Heinz / Traugber, Patrick Handlungsalternativen einer Genossenschaftsbank im Investmentprozess unter Berücksichtigung der Risikotragfähigkeit	2007
78.	Gerdemeier, Dieter / Roffia, Barbara Monetary Analysis: A VAR Perspective	2007
77.	Heidorn, Thomas / Kaiser, Dieter G. / Muschiol, Andrea Portfoliooptimierung mit Hedgefonds unter Berücksichtigung höherer Momente der Verteilung	2007
76.	Jobe, Clemens J. / Ockens, Klaas / Safran, Robert / Schalast, Christoph Work-Out und Servicing von notleidenden Krediten – Berichte und Referate des HfB-NPL Servicing Forums 2006	2006
75.	Abrar, Kamyar / Schalast, Christoph Fusionskontrolle in dynamischen Netzsektoren am Beispiel des Breitbandkabelsektors	2006
74.	Schalast, Christoph / Schanz, Kay-Michael Wertpapierprospekte: Markteinführungspublizität nach EU-Prospektverordnung und Wertpapierprospektgesetz 2005	2006
73.	Dickler, Robert A. / Schalast, Christoph Distressed Debt in Germany: What's Next? Possible Innovative Exit Strategies	2006
72.	Belke, Ansgar / Polleit, Thorsten How the ECB and the US Fed set interest rates	2006
71.	Heidorn, Thomas / Hoppe, Christian / Kaiser, Dieter G. Heterogenität von Hedgefondsindizes	2006
70.	Baumann, Stefan / Löchel, Horst The Endogeneity Approach of the Theory of Optimum Currency Areas - What does it mean for ASEAN + 3?	2006
69.	Heidorn, Thomas / Trautmann, Alexandra Niederschlagsderivate	2005
68.	Heidorn, Thomas / Hoppe, Christian / Kaiser, Dieter G. Möglichkeiten der Strukturierung von Hedgefondsportfolios	2005
67.	Belke, Ansgar / Polleit, Thorsten (How) Do Stock Market Returns React to Monetary Policy ? An ARDL Cointegration Analysis for Germany	2005
66.	Daynes, Christian / Schalast, Christoph Aktuelle Rechtsfragen des Bank- und Kapitalmarktsrechts II: Distressed Debt - Investing in Deutschland	2005
65.	Gerdemeier, Dieter / Polleit, Thorsten Measures of excess liquidity	2005

64.	Becker, Gernot M. / Harding, Perham / Hölscher, Luise Financing the Embedded Value of Life Insurance Portfolios	2005
63.	Schalast, Christoph Modernisierung der Wasserwirtschaft im Spannungsfeld von Umweltschutz und Wettbewerb – Braucht Deutschland eine Rechtsgrundlage für die Vergabe von Wasserversorgungskonzessionen? –	2005
62.	Bayer, Marcus / Cremers, Heinz / Kluß, Norbert Wertsicherungsstrategien für das Asset Management	2005
61.	Löchel, Horst / Polleit, Thorsten A case for money in the ECB monetary policy strategy	2005
60.	Richard, Jörg / Schalast, Christoph / Schanz, Kay-Michael Unternehmen im Prime Standard - „Staying Public“ oder „Going Private“? - Nutzenanalyse der Börsennotiz -	2004
59.	Heun, Michael / Schlink, Torsten Early Warning Systems of Financial Crises - Implementation of a currency crisis model for Uganda	2004
58.	Heimer, Thomas / Köhler, Thomas Auswirkungen des Basel II Akkords auf österreichische KMU	2004
57.	Heidorn, Thomas / Meyer, Bernd / Pietrowiak, Alexander Performanceeffekte nach Directors Dealings in Deutschland, Italien und den Niederlanden	2004
56.	Gerdesmeier, Dieter / Roffia, Barbara The Relevance of real-time data in estimating reaction functions for the euro area	2004
55.	Barthel, Erich / Gierig, Rauno / Kühn, Ilmhart-Wolfram Unterschiedliche Ansätze zur Messung des Humankapitals	2004
54.	Anders, Dietmar / Binder, Andreas / Hesdahl, Ralf / Schalast, Christoph / Thöne, Thomas Aktuelle Rechtsfragen des Bank- und Kapitalmarktrechts I : Non-Performing-Loans / Faule Kredite - Handel, Work-Out, Outsourcing und Securitisation	2004
53.	Polleit, Thorsten The Slowdown in German Bank Lending – Revisited	2004
52.	Heidorn, Thomas / Siragusano, Tindaro Die Anwendbarkeit der Behavioral Finance im Devisenmarkt	2004
51.	Schütze, Daniel / Schalast, Christoph (Hrsg.) Wider die Verschleuderung von Unternehmen durch Pfandversteigerung	2004
50.	Gerhold, Mirko / Heidorn, Thomas Investitionen und Emissionen von Convertible Bonds (Wandelanleihen)	2004
49.	Chevalier, Pierre / Heidorn, Thomas / Krieger, Christian Temperaturderivate zur strategischen Absicherung von Beschaffungs- und Absatzrisiken	2003
48.	Becker, Gernot M. / Seeger, Norbert Internationale Cash Flow-Rechnungen aus Eigner- und Gläubigersicht	2003
47.	Boenkost, Wolfram / Schmidt, Wolfgang M. Notes on convexity and quanto adjustments for interest rates and related options	2003
46.	Hess, Dieter Determinants of the relative price impact of unanticipated Information in U.S. macroeconomic releases	2003
45.	Cremers, Heinz / Kluß, Norbert / König, Markus Incentive Fees. Erfolgsabhängige Vergütungsmodelle deutscher Publikumsfonds	2003
44.	Heidorn, Thomas / König, Lars Investitionen in Collateralized Debt Obligations	2003
43.	Kahlert, Holger / Seeger, Norbert Bilanzierung von Unternehmenszusammenschlüssen nach US-GAAP	2003
42.	Beiträge von Studierenden des Studiengangs BBA 012 unter Begleitung von Prof. Dr. Norbert Seeger Rechnungslegung im Umbruch - HGB-Bilanzierung im Wettbewerb mit den internationalen Standards nach IAS und US-GAAP	2003
41.	Overbeck, Ludger / Schmidt, Wolfgang Modeling Default Dependence with Threshold Models	2003
40.	Balthasar, Daniel / Cremers, Heinz / Schmidt, Michael Portfoliooptimierung mit Hedge Fonds unter besonderer Berücksichtigung der Risikokomponente	2002
39.	Heidorn, Thomas / Kantwill, Jens Eine empirische Analyse der Spreadunterschiede von Festsatzanleihen zu Floatern im Euroraum und deren Zusammenhang zum Preis eines Credit Default Swaps	2002
38.	Böttcher, Henner / Seeger, Norbert Bilanzierung von Finanzderivaten nach HGB, EstG, IAS und US-GAAP	2003

37.	Moormann, Jürgen Terminologie und Glossar der Bankinformatik	2002
36.	Heidorn, Thomas Bewertung von Kreditprodukten und Credit Default Swaps	2001
35.	Heidorn, Thomas / Weier, Sven Einführung in die fundamentale Aktienanalyse	2001
34.	Seeger, Norbert International Accounting Standards (IAS)	2001
33.	Moormann, Jürgen / Stehling, Frank Strategic Positioning of E-Commerce Business Models in the Portfolio of Corporate Banking	2001
32.	Sokolovsky, Zbynek / Strohhecker, Jürgen Fit für den Euro, Simulationsbasierte Euro-Maßnahmenplanung für Dresdner-Bank-Geschäftsstellen	2001
31.	Roßbach, Peter Behavioral Finance - Eine Alternative zur vorherrschenden Kapitalmarkttheorie?	2001
30.	Heidorn, Thomas / Jaster, Oliver / Willeitner, Ulrich Event Risk Covenants	2001
29.	Biswas, Rita / Löchel, Horst Recent Trends in U.S. and German Banking: Convergence or Divergence?	2001
28.	Eberle, Günter Georg / Löchel, Horst Die Auswirkungen des Übergangs zum Kapitaldeckungsverfahren in der Rentenversicherung auf die Kapitalmärkte	2001
27.	Heidorn, Thomas / Klein, Hans-Dieter / Siebrecht, Frank Economic Value Added zur Prognose der Performance europäischer Aktien	2000
26.	Cremers, Heinz Konvergenz der binomialen Optionspreismodelle gegen das Modell von Black/Scholes/Merton	2000
25.	Löchel, Horst Die ökonomischen Dimensionen der ‚New Economy‘	2000
24.	Frank, Axel / Moormann, Jürgen Grenzen des Outsourcing: Eine Exploration am Beispiel von Direktbanken	2000
23.	Heidorn, Thomas / Schmidt, Peter / Seiler, Stefan Neue Möglichkeiten durch die Namensaktie	2000
22.	Böger, Andreas / Heidorn, Thomas / Graf Waldstein, Philipp Hybrides Kernkapital für Kreditinstitute	2000
21.	Heidorn, Thomas Entscheidungsorientierte Mindestmargenkalkulation	2000
20.	Wolf, Birgit Die Eigenmittelkonzeption des § 10 KWG	2000
19.	Cremers, Heinz / Robé, Sophie / Thiele, Dirk Beta als Risikomaß - Eine Untersuchung am europäischen Aktienmarkt	2000
18.	Cremers, Heinz Optionspreisbestimmung	1999
17.	Cremers, Heinz Value at Risk-Konzepte für Marktrisiken	1999
16.	Chevalier, Pierre / Heidorn, Thomas / Rütze, Merle Gründung einer deutschen Strombörse für Elektrizitätsderivate	1999
15.	Deister, Daniel / Ehrlicher, Sven / Heidorn, Thomas CatBonds	1999
14.	Jochum, Eduard Hoshin Kanri / Management by Policy (MbP)	1999
13.	Heidorn, Thomas Kreditderivate	1999
12.	Heidorn, Thomas Kreditrisiko (CreditMetrics)	1999
11.	Moormann, Jürgen Terminologie und Glossar der Bankinformatik	1999
10.	Löchel, Horst The EMU and the Theory of Optimum Currency Areas	1998



09.	Löchel, Horst Die Geldpolitik im Währungsraum des Euro	1998
08.	Heidorn, Thomas / Hund, Jürgen Die Umstellung auf die Stückaktie für deutsche Aktiengesellschaften	1998
07.	Moormann, Jürgen Stand und Perspektiven der Informationsverarbeitung in Banken	1998
06.	Heidorn, Thomas / Schmidt, Wolfgang LIBOR in Arrears	1998
05.	Jahresbericht 1997	1998
04.	Ecker, Thomas / Moormann, Jürgen Die Bank als Betreiberin einer elektronischen Shopping-Mall	1997
03.	Jahresbericht 1996	1997
02.	Cremers, Heinz / Schwarz, Willi Interpolation of Discount Factors	1996
01.	Moormann, Jürgen Lean Reporting und Führungsinformationssysteme bei deutschen Finanzdienstleistern	1995

**FRANKFURT SCHOOL / HFB – WORKING PAPER SERIES  
CENTRE FOR PRACTICAL QUANTITATIVE FINANCE**

No.	Author/Title	Year
28.	Beyna, Ingo / Wystup, Uwe Characteristic Functions in the Cheyette Interest Rate Model	2011
27.	Detering, Nils / Weber, Andreas / Wystup, Uwe Return distributions of equity-linked retirement plans	2010
26.	Veiga, Carlos / Wystup, Uwe Ratings of Structured Products and Issuers' Commitments	2010
25.	Beyna, Ingo / Wystup, Uwe On the Calibration of the Cheyette. Interest Rate Model	2010
24.	Scholz, Peter / Walther, Ursula Investment Certificates under German Taxation. Benefit or Burden for Structured Products' Performance	2010
23.	Esquivel, Manuel L. / Veiga, Carlos / Wystup, Uwe Unifying Exotic Option Closed Formulas	2010
22.	Packham, Natalie / Schlögl, Lutz / Schmidt, Wolfgang M. Credit gap risk in a first passage time model with jumps	2009
21.	Packham, Natalie / Schlögl, Lutz / Schmidt, Wolfgang M. Credit dynamics in a first passage time model with jumps	2009
20.	Reiswich, Dimitri / Wystup, Uwe FX Volatility Smile Construction	2009
19.	Reiswich, Dimitri / Tompkins, Robert Potential PCA Interpretation Problems for Volatility Smile Dynamics	2009
18.	Keller-Ressel, Martin / Kilin, Fiodar Forward-Start Options in the Barndorff-Nielsen-Shephard Model	2008
17.	Griebsch, Susanne / Wystup, Uwe On the Valuation of Fader and Discrete Barrier Options in Heston's Stochastic Volatility Model	2008
16.	Veiga, Carlos / Wystup, Uwe Closed Formula for Options with Discrete Dividends and its Derivatives	2008
15.	Packham, Natalie / Schmidt, Wolfgang Latin hypercube sampling with dependence and applications in finance	2008
14.	Hakala, Jürgen / Wystup, Uwe FX Basket Options	2008
13.	Weber, Andreas / Wystup, Uwe Vergleich von Anlagestrategien bei Riesterrenten ohne Berücksichtigung von Gebühren. Eine Simulationsstudie zur Verteilung der Renditen	2008

12.	Weber, Andreas / Wystup, Uwe Riesterrente im Vergleich. Eine Simulationsstudie zur Verteilung der Renditen	2008
11.	Wystup, Uwe Vanna-Volga Pricing	2008
10.	Wystup, Uwe Foreign Exchange Quanto Options	2008
09.	Wystup, Uwe Foreign Exchange Symmetries	2008
08.	Becker, Christoph / Wystup, Uwe Was kostet eine Garantie? Ein statistischer Vergleich der Rendite von langfristigen Anlagen	2008
07.	Schmidt, Wolfgang Default Swaps and Hedging Credit Baskets	2007
06.	Kilin, Fiodar Accelerating the Calibration of Stochastic Volatility Models	2007
05.	Gribsch, Susanne/ Kühn, Christoph / Wystup, Uwe Instalment Options: A Closed-Form Solution and the Limiting Case	2007
04.	Boenkost, Wolfram / Schmidt, Wolfgang M. Interest Rate Convexity and the Volatility Smile	2006
03.	Becker, Christoph/ Wystup, Uwe On the Cost of Delayed Currency Fixing Announcements	2005
02.	Boenkost, Wolfram / Schmidt, Wolfgang M. Cross currency swap valuation	2004
01.	Wallner, Christian / Wystup, Uwe Efficient Computation of Option Price Sensitivities for Options of American Style	2004

## **HfB – SONDERARBEITSBERICHTE DER HfB - BUSINESS SCHOOL OF FINANCE & MANAGEMENT**

<b>No.</b>	<b>Author/Title</b>	<b>Year</b>
01.	Nicole Kahmer / Jürgen Moormann Studie zur Ausrichtung von Banken an Kundenprozessen am Beispiel des Internet (Preis: € 120,-)	2003

Printed edition: € 25.00 + € 2.50 shipping

Download:

Working Paper: [http://www.frankfurt-school.de/content/de/research/publications/list\\_of\\_publication/list\\_of\\_publication](http://www.frankfurt-school.de/content/de/research/publications/list_of_publication/list_of_publication)  
CPQF: [http://www.frankfurt-school.de/content/de/cpqf/research\\_publications.html](http://www.frankfurt-school.de/content/de/cpqf/research_publications.html)

### **Order address / contact**

Frankfurt School of Finance & Management  
Sonnemannstr. 9–11 ■ D–60314 Frankfurt/M. ■ Germany  
Phone: +49 (0) 69 154 008–734 ■ Fax: +49 (0) 69 154 008–728  
eMail: [e.lahdensuu@fs.de](mailto:e.lahdensuu@fs.de)

Further information about Frankfurt School of Finance & Management  
may be obtained at: <http://www.fs.de>